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DERAL HIGHWAY ADMINISTRATION
GION 8

STATE DOCUMENTS

JUN 1 1976

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 8

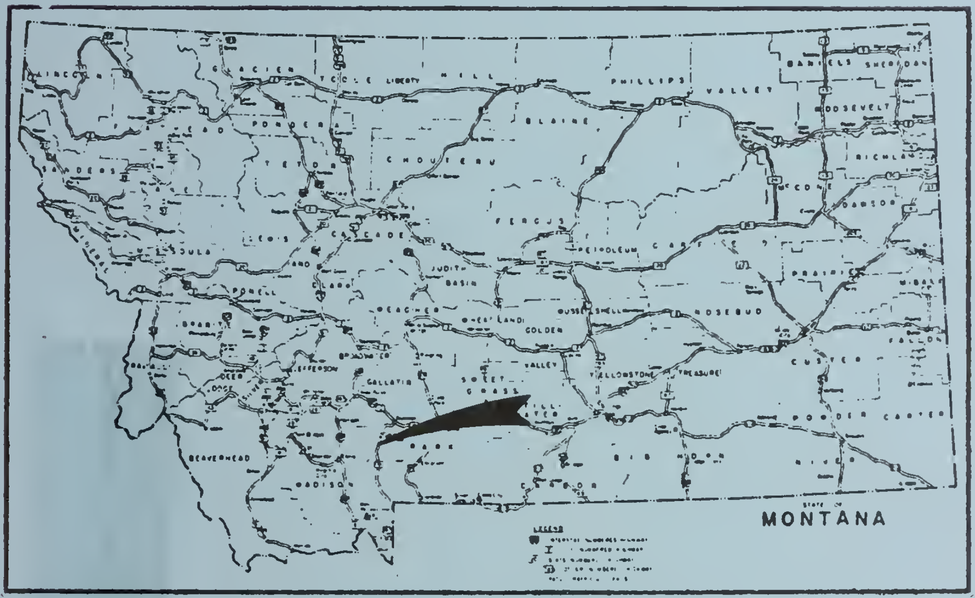
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

DRAFT
ENVIRONMENTAL STATEMENT

ADMINISTRATIVE ACTION

for

PROJECT RF - 20 (4)
U.S. 191 SPUR



THIS HIGHWAY IMPROVEMENT IS PROPOSED FOR FUNDING UNDER TITLE 23, U.S.C. THIS STATEMENT FOR THE IMPROVEMENT WAS DEVELOPED IN CONSULTATION WITH THE FEDERAL HIGHWAY ADMINISTRATION AND IS SUBMITTED PURSUANT TO 42 U.S.C. 4332 (2) (C)

H. J. ANDERSON, DIRECTOR OF HIGHWAYS

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By Jack R. Beckert
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APPROVED AND ADOPTED BY:

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INTRODUCTION

The purpose of the environmental statement is to analyze any action which may have adverse economic, social, and environmental effects and to allow for public participation in the final decisions of the Montana Department of Highways when developing publicly financed highway improvements.

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SUMMARY SHEET

I. TYPE OF ACTION

(X) Administrative ( ) Legislative

(X) Draft ( ) Final

(X) Environmental Statement ( ) Section 4(f) Statement attached

II. INFORMATION

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III. PROJECT DESCRIPTION:

The project begins on U.S. 191 near the mouth of the West Fork of the Gallatin River, about midway between Bozeman and West Yellowstone, Montana. It extends up the West Fork drainage 9.1± miles to a point near the base of Lone Mountain near the divide between the Gallatin and Madison Rivers. The project is a Federal-Aid Primary Spur to Federal-Aid Primary Route 50, U.S. 191. It is located in Gallatin and Madison Counties. Exhibits A, B1, B2, and C show the location of the project.

A 30-foot wide paved highway, with two 12-foot driving lanes and three-foot shoulders will be provided.

IV. ENVIRONMENTAL IMPACTS

The proposed highway improvement would provide a safe and efficient transportation facility for the traveling public, in addition to improved access to the developing recreational community. The West Fork drainage, along with Gallatin Canyon, is undergoing major land use changes. The present gravel surfaced road has not caused the change; however, the proposed improvement will aid and perhaps further stimulate that change. The improvement would place projected increasing traffic volumes on an adequate modern facility rather than on a facility incapable of handling the increase.

Other probable impacts include a reduction of highway-related dust, mud, siltation, and vehicle wear and tear. No businesses, people or residences will be relocated. None of the alternates involve land from a publicly owned park, recreation or refuge of national, state, or local significance, including any land from historic sites of similar significance.

Approximately 60 and 108 acres of grazable and timbered acres, respectively, would be required for right-of-way, part of which is marginal wildlife habitat. Some localized impacts on groundwater are possible, in addition to short-term increases in turbidity and siltation during construction.

Noise levels are anticipated to increase as projected traffic volumes increase. The highway user would be inconvenienced by traffic delays and detours during construction.

Agencies and organizations reviewing this statement are referred to the U.S. Forest Service Final Environmental Statement on the Gallatin Exchange Numbers 2 and 3, and the Montana State University's study on the Gallatin Canyon "Impacts of Large Recreational Developments Upon Semi-Primitive Environments" for a more complete discussion on the overall environmental impacts of the entire Big Sky development.

V. ALTERNATIVES

Six alternates were considered for the project in a 1972 Environmental Statement. The final alignment selected was a combination of two alternates that primarily followed the existing road.

This alignment is again under study, with two design sub-alternates around two problem areas, the active slide near the Medical Center, and the Beehive Creek crossing.

The no-build alternate is again being considered.

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VII. DATE DRAFT STATEMENT AVAILABLE TO C.E.Q.: April 16, 1976

VIII. SUBSEQUENT FEDERAL ACTIONS DUE TO THIS ACTION

Corps of Engineers - Section 404 Permit
U.S. Forest Service - Easement Transfer

ENVIRONMENTAL STATEMENT

I. NEED FOR PROJECT

The purpose of the proposed project is to provide a paved two-lane highway (part of the Federal-Aid Primary System) between the recreational community of Big Sky, Montana and U.S. 191. The proposed improvement of the U.S. 191 Spur would be approximately nine miles long, extending from its connection with U.S. 191 to the Mountain Village near the Lone Mountain Ski Area. Meadow Village, located on the Spur approximately two and one-half miles west of U.S. 191, and the Mountain Village, are the principal centers of the resort community. The Big Sky, Montana Post Office is located at Meadow Village.

Although a major landowner in the area served by the U.S. 191 Spur is Big Sky of Montana, Inc., there are numerous private owners, in addition to Burlington Northern, Inc. and the U.S. Forest Service. The Spur is not the typical local road that serves little more than access to property, but is in reality a relatively heavily-traveled road serving major intercommunity movements.

The ski area, convention center, other recreational facilities, private residential units, and the attendant private, commercial, and public services normally associated with a community have become major traffic generators. The average daily traffic (ADT) for the U.S. 191 Spur for 1974 was 1,125 ADT, but this dropped to 820 ADT in 1975. The 27 percent decline observed in 1975 may be attributed to: a decline in construction traffic due to completion of existing commercial facilities and declining market demand for residential housing; reduction of local sightseers and traffic in

general due to the energy crisis; recreational users making fewer daily vehicle trips and remaining at Big Sky for longer periods of time; and the establishment of regular bus service. Traffic on the upper 6.1 miles was 621 ADT in 1975.

The design year traffic is the traffic that is expected 20 years after the project is awarded to contract. Traffic projections for the West Fork area are hampered by the inflation-recession trends, energy crisis, potential future developments, and the variable nature of recreational traffic. Recreational type traffic has the characteristic feature of high traffic peaks and high weekend volumes. Weekend traffic at various times during the 1975 recreational year has reached 1,250 vehicles per day.

Due to the instability of the economic and energy conditions, the West Fork area is not expected to reach 100 percent development during the next 20 years, but it may reach 80 percent. Utilizing the Montana State University land-use development projections for residential and commercial development, it is estimated that the total development of the West Fork is currently 35 percent.

For the purpose of predicting future traffic volumes, it is assumed that traffic volume is in direct proportion to the amount of residential and lodging development. The present West Fork single-family private home, mobile home, condominium, and lodging unit development amounts to 1,152 units compared to a total proposed West Fork development of 5,826 units. Assuming 80 percent development by 1996, a total of 4,661 residential units would be in existence. Using this information, a growth factor of 4.05 can be computed (4661 units ÷ 1152 existing units = 4.05). The traffic expansion factor, times the

existing traffic for the lower 3.0 miles (820 ADT) gives a 1996 design year traffic figure of 3,321 ADT.

The same direct proportion and factor approach is used to project traffic on the upper 6.1 miles of the Spur. However, existing development of 710 units for the Mountain Village and 80 percent of the proposed development of 3,325 units for the Mountain Village is used to find the growth factor of 3.75 (80 percent x 3325 = 2660; 2660 ÷ 710 = 3.75). The 1996 projected design year traffic for the upper 6.1 miles of the Spur is 2,329 ADT.

While the projected traffic is expected to more than triple by 1996, it is not expected to exceed the capacity of the proposed improvement. Capacity analysis takes into consideration the level of service, percent of commercial or truck traffic, and roadway width. Based on mountainous terrain, five percent commercial vehicles, and a 30-foot width, the capacity of the U.S. 191 Spur at the lowest level of service E is a design hourly volume (DHV) of 1,170 vehicles per hour, or an ADT of 7,090 vehicles. This figure is for the whole 9.1 miles of road. The capacity on some subsections would be lower, depending on the grade and alignment.

The existing road is an improved gravel road for the first three miles and the upper six miles is an improved logging road. Maintenance on the existing road has been difficult and expensive. The high traffic volumes make it impossible to maintain a smooth surface and dust control measures cannot keep up with the wear on the road surfact. The road users must fight chuckholes, dust, and mud to reach their destination and do not benefit from the state and federal gas tax or other revenues generated by the road and the community it serves.

The importance of an adequate transportation system was pointed out in a background economic study, "West Fork Economic Growth Center, Gallatin County, Montana". (1) This report emphasized that unless the facility was "convenient and comfortable" the use of the recreational and commercial facilities would suffer, reducing tax revenues, jobs, and capital development. It also stated, that a road design which considers its environmental impacts would aid in minimizing the impact of the intrusion of a large number of people on the West Fork area. In addition, an adequate road system would help insure that there would be enough users at the facility to develop some form of common carrier transportation system.

The Montana Functional Classification and Needs Study classified the 1990 system of highways for the State of Montana according to its uses or function and provides estimates of the costs to provide an adequate system of highways by 1990. Statutory authority originated from the Federal-Aid Highway Act of 1970 and called for the Secretary of Transportation to develop and include: "specific recommendations for the functional realignment of the Federal-Aid Systems. These recommendations shall be based on the Functional Classification Study made in cooperation with the State Highway Department and local governments as required by the Federal-Aid Highway Act of 1968 and submitted to Congress in 1970, and the Functional Classification and Needs Study now underway of the Federal-Aid System in 1990".

According to the 1990 classification of arterial systems, U.S. 191 through the Gallatin Canyon is a principal arterial, with the proposed U.S. 191 Spur designed as a minor arterial. Both roads are appropriately included on the Montana Federal-Aid Primary System.

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1) Wallner. "West Fork Economic Growth Center, Gallatin County, Montana" Pg. 61

The proposed improvement of U.S. 191 Spur is in accordance with available transportation planning objectives and will compliment facility plans.

HISTORY:

In January 1970, the Montana Department of Highways was contacted by the Montana Department of Planning and Economic Development regarding assistance in the design and construction of a highway in the West Fork drainage of the Gallatin River. The following month, former newscaster Chet Huntley publicly announced the proposed development of Big Sky of Montana, Inc. by Chrysler Realty. The recreational resort community of Big Sky would involve two separately developed areas in the West Fork drainage, the Meadow and Mountain Villages.

Several months after the public announcement of Big Sky, the Department of Highways, in negotiations with the Department of Planning and Economic Development, agreed to perform the necessary design and construction engineering studies on the proposed highway and to acquire right-of-way in the name of the counties involved. The improvement was to be funded with a grant from the Economic Development Administration (EDA) with matching funds from Big Sky of Montana, Inc., county and state, with the county's and the state's contribution being services and in-kind construction. Survey and design were started on that basis.

During the early design phase, consideration was given to the possible extension of the road to Ennis, provided that the boundary of the proposed Spanish Peaks Wilderness Area was settled. However, the Montana Department of Highways has not proposed extending the Spur route to U.S. 287, and the

wilderness proposals for this area preclude such a proposal until the final boundaries are determined. The designation of the area as a primitive or wilderness area would forever preclude the extension. At the present time and in the foreseeable future, extension of the U.S. 191 Spur to the Madison Valley appears unfeasible because of construction obstacles, environmental impacts, and lack of available funding.

In September 1970, the EDA request was turned down. It was decided at that time to proceed with the construction of the lower 3.0 miles with the matching funds available and to pursue other means of funding for the remainder of the project. Amid considerable controversy over the environmental impact of the Big Sky Development and the contested Forest Service/ Burlington Northern, Inc. land exchange, construction of the resort began early in 1971. Contracts were awarded in July 1971 for construction of a structure across the West Fork and three miles of gravel surface roadway from U.S. 191 to the Meadow Village area utilizing funds from Big Sky of Montana, Inc. and state funds from the Montana Department of Highways. This section of roadway was built to standards acceptable to the Department of Highways.

On April 30, 1971, the Department of Highways made application to the Federal Highway Administration (FHWA) to designate the road as a Federal-Aid Primary Spur route and on August 20, 1971 that application was approved. Establishing the highway as part of the primary highway system made the nine mile Spur eligible for federal funding.

Application to the Federal Highway Administration for designation of the West Fork drainage as an Economic Growth Center was made on August 12, 1971 and was approved in March 1972. This designation made the federal-aid

matching ratio, at that time, 20 percent higher than on normal federal-aid primary projects.

A draft environmental impact statement for the surfacing of the lower three miles and total construction of the upper six miles was distributed in February 1972; a corridor public hearing was held on April 12, 1972. Construction of the gravel-surfaced lower three miles of the U.S. 191 Spur was completed in mid-1972, with the Department of Highways assuming maintenance on September 27, 1972.

The final impact statement for the nine-mile Spur was reviewed and accepted by the Federal Highway Administration and forwarded to the Council on Environmental Quality in October 1972. Location approval was granted by the Federal Highway Administration on November 30, 1972. However, a civil suit was filed in Federal District Court against the U.S. Department of Transportation and the FHWA by the National Forest Preservation Group and others.* The summary judgment made in December 1972 prohibited the spending of federal funds for a road where a traffic generator did not presently exist. As a result of the court decision, FHWA withdrew the primary designation of the Spur.

By December 1973, the Forest Service/Burlington Northern, Inc. land exchange had been settled and Big Sky of Montana, Inc. started operating its ski and commercial facilities, in addition to construction of condominiums, lodge, office, and hotel at the Mountain Village. Big Sky had also completed the upgrading of the existing West Fork logging road which connects the Meadow and Mountain Villages.

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*National Forest Preservation Group et al., v. Volpe, National U.S. D.C., Montana Civil No. 2152

The existing upper road is held in joint ownership by the Forest Service and Burlington Northern, Inc. Big Sky acquired private land that had a right to use and maintain the road. Big Sky, as successors in interest, continues to use and maintain the road, but the road remains under the administration of the Forest Service, which has the controlling interest in the form of a deeded easement.

In April 1974 the Montana Department of Highways requested a reevaluation of the system designation because of the continuing development of the area. On August 9, 1974, the Federal Highway Administration concluded that the deficiencies cited in the court order no longer existed and approval of the Spur as part of the Federal-Aid Primary System was again granted. Authorization for preliminary engineering activies to develop location and preliminary design data and environmental impact information was granted on September 11, 1974.

The Federal Highway Administration has filed a motion in Federal District Court to dismiss the 1973 summary judgment as moot and a hearing on this motion is scheduled for April 23, 1976. The Federal Highway Administration reviewed public input received following the publication of a notice inviting comments, and determined on January 30, 1976 that improvement of the entire nine-mile section is a major action and an Environmental Impact Statement was warranted.

Several detailed studies and environmental impact statements have been made on this area. The information in this report is summarized and a more detailed account can be found in these reports listed in the Appendix.

II. DESCRIPTION OF THE PROPOSED HIGHWAY IMPROVEMENT AND ITS SURROUNDINGS

A. PROJECT DESCRIPTION

The project is located in Gallatin and Madison Counties in southwestern Montana (see Exhibit A). It begins on U.S. 191 near the mouth of the West Fork of the Gallatin River about midway between Bozeman and West Yellowstone and extends westerly up the West Fork drainage, a distance of 9.1+ miles. The proposed improvement consists of two anticipated construction sections, the lower 3.0 miles, Station 0+00 to Station 159+00, and the upper 6.1 miles, Station 159+00 to Station 480+00. In general the project would provide for surfacing the existing road on the lower 3.0 mile section, with reconstruction, possible alignment changes, drainage, and surfacing of the upper 6.1 miles. The preliminary cost estimate on the lower three-mile section may reach $502,000.00; the upper 6.1 mile section estimate may reach $3,400,000.00. To date, Big Sky of Montana, Inc. has spent $280,000.00 and the Department of Highways $290,000.00 on the lower three-mile section. Big Sky has also spent $712,000.00 in upgrading the existing road between the Meadow and Mountain Villages. Present schedules indicate a contract award for the lower three mile paving in late 1976, with the upper 6.1 miles of construction and paving scheduled in 1977-78.

The new roadway would provide a 30-foot paved surface with two 12-foot driving lanes and two 3-foot shoulders. Normal design standards would require a 40-foot surface, but this 30-foot width is an exception that will be used to reduce costs and environmental impacts. Inslopes would have 6:1 safety slopes with a minimum ditch width of 15 feet. Cut and fill slopes would vary according to their height and the type of material encountered. The

minimum right-of-way would be 60 feet on each side of the road centerline. Right-of-way would be acquired from the owners of private land crossed by the road not in the existing right-of-way. The Forest Service will recommend that a U.S. Department of Transportation Easement be grated for that portion of the existing road that the Forest Service has easements on.

Drainage structures would be provided based on hydrologic and hydraulic studies. Drainage structure design would be based on a 50-year flood frequency, with consideration of the 100-year storm data. Except bridge structures. Minor channel adjustments would be required at culvert ends.

Design standards for the project will be in accordance with the State of Montana, Department of Highways Design Standards for Primary and Secondary highways, except in those cases where physical or environmental conditions indicate that a reduced design standard would be in the best interest of the total project.

B. GEOLOGIC HISTORY

The Madison and Gallatin Ranges occupy the southeastern end of the northern Rocky Mountain Physiographic Province. Generally these ranges are the result of ancient Precambrian crystalline rocks overlaid with marine sediments of Paleozoic and Masozoic Age. The area was subjected to compressive forces which caused uplifted corrugative folds bounded by faults. Volcanic action and flows followed the uplifting. The softer sedimentary rocks have been eroded from the higher areas leaving the basement rock exposed and the lower areas as dumping grounds for the eroded material.

During the Pleistocene Age, the upper reaches of this area were subjected to glacial ice. As a result, morainal and other glacial deposits are common and the streams have spread this debris out in aprons in the valleys.

Landslides, mudflows, and slumps are major factors in the evolution of the landforms in this area, with about 25 percent of the surface area determined by these actions. Such movements are the result of a combination of an abundance of surface water, steep slopes and rock and soil formations that by their chemical makeup make them susceptible to movement. Although most movement has occurred in the past under different climatic conditions, there are still several active sites. These movements can be expected to continue in a diminished form, especially since this area is active seismically.

C. GEOLOGY

The predominant rock types in the West Fork Basin are shales and sandstones of the Kootenai and Colorado formations of the Cretaceous Age. Associated igneous intrusive and volcanic rocks make up the dominant rock type forming the higher mountains of the upper valley. Overlying the shales and sandstones are glacial tills and alluvial material which range in depth up to 50 feet.

This alluvial material is porous and transfers water to the impervious black shale stratum quickly. Water is collected at this level and discharges into the groundwater system of the Gallatin drainage basin.

The materials concerning highway construction are the glacial tills, dark clay shales and zones of bentonitic volcanic ash underlying the till. These materials are inherently unstable and will require special

attention in highway design. The black shales have the most critical limitations where weight-bearing capacity, slope stability, and water passing ability are concerned.

Stability of these materials is further affected by locally high groundwater tables or heavy surface runoff. These factors have been the cause of numerous landslides throughout the valley and the potential for landslides or other mass-gravity movements exist, throughout the entire area. Most of the active slides are generally of the slump block or mud flow type and are relatively small in size.

The existing logging road alignment crosses several areas which are either presently unstable, or due to future construction, could become potentially unstable. These areas have been a maintenance problem and will continue to be unless future improvements are designed to recognize this activity.

The possibilities of earthquake shock compounds the magnitude of instability, as shown by the 1959 Madison Canyon earthquake. This event, plus the evidence of fault movements in the West Fork area in the relatively recent geological past point to the clear need to consider all land use planning and construction from an earthquake hazard point of view.

D. TERRAIN

The U.S. 191 Spur is located in the West Fork of the Gallatin River. This river basin occupies about 100 square miles and ranges in elevation from about 6,000 feet to over 11,000 feet at the summit of Lone Mountain. The basin is typical of the northern Rockies. Glaciers of the past have given the terrain its strong alpine character. The surrounding mountains

the Spanish Peaks to the north, and the Madison Mountains to the south are of the same formation but are divided by the West Fork drainage to the Gallatin River to the east and Jack Creek to the Madison River on the west. Lone Mountain is the dominant physical feature of the area.

The West Fork drainage contains open meadows in its lower reaches and timber-covered ridges at higher elevations with timberline above 9,000 feet. The West Fork branches into the South Fork, the Middle Fork, and the North Fork, with these streams being fed by smaller tributaries.

E. CLIMATE

Topography and elevation variation play a very important part in determining the temperature, wind, and precipitation of the area. In general, the mountainous sections are wetter and cooler than the broad valley floors.

West of the Continental Divide the climate tends to be controlled by the flow of moist, Pacific marine air. East of the divide, it becomes continental in nature with outbreaks of dry, often cold air from Canada, and southerly, moist air from the Gulf of Mexico. The mountains serve as barriers to the Canadian air outbreaks and flows from the Gulf of Mexico. Storms and weather fronts from the Pacific moving across the area during the winter lose much of their intensity and moisture west of the divide. As a result, flows from the Gulf of Mexico, strongest in the spring and early summer, produce most of the precipitation in the area. The cold outbreaks from Canada occasionally reach the area during the winter and provide the coldest extremes

experienced. Thunderstorms are occasionally observed, especially in the late spring and summer months.

Midwinter temperatures at the Meadow Village, elevation 6,200 feet, average about 4° colder, both day and night, than Bozeman, elevation 4,856 feet, which has an average high in January of 31°F, and a low of 10°F. Meadow Village midsummer temperatures average about 6° cooler during the day and about 12° colder at night than Bozeman, which has an average high in the low 80's and lows of about 50°F. With an elevation of 7,600 feet, temperatures at the Mountain Village run about 8°F cooler during the day and about 3.5° cooler at night than Meadow Village, both summer and winter. Seasonal development of plant life in the Meadow Village area occurs approximately two to three weeks later than Bozeman. Duration of the growing season averages about 70 days at the Meadow Village compared to 110 days in the Bozeman area.

Precipition varies widely over the West Fork drainage because of the 5000 foot difference in elevation from the headwaters to the mouth. On the average, it varies from nearly 60 inches at the highest elevations to less than 20 inches annually. Estimates based on streamflow leaving the drainage indicate that the average precipitation is about 35 inches annually, with slightly less than half being lost to the atmosphere through evaporation and transpiration. The largest percentage of precipitation occurs in the form of snowfall, from December through May.

Winds in the West Fork at any given time will vary greatly from one location to another. High ridges may be windy when the canyons have little wind. However, the general flow of air is from the west and the wind is generally light. On relatively windless nights in the mountains

cold air flows downhill to form cold air lakes in low lying basins. The hillsides are usually drained of cold air and tend to be thermal belts. These cold and warm sites are located all up and down the Gallatin Canyon. Areas of cold air ponding tend to become foggy, and collect smoke, dust, or other polluntants released to the atmosphere. These inversion layers can occur nightly for days during the presence of an atmospheric high pressure system over the region.

F. AIR QUALITY

Inversions occur in the West Fork mostly in the winter. The Meadow and Mountain Village areas have approximately the same air pollution potential when considering ventilation since both have roughly the same number of calm periods, although the Mountain Village area has longer periods of calm winds, implying that this location may be more apt to have a problem with air quality.

Measurements of suspended particulates in the air, of which a large portion is dust, began at the Big Sky area in 1971. This data, along with large air ion analysis, revealed that while there was no measurable change in air quality in 1971 an increase was observed in 1972 but it did not rise significantly from 1972 to 1974. The highest concentration existed during the snow-free season.

Over the history of the Big Sky development, small increments in air contamination have been observed, but at present no real degradation of air quality has been documented for any extended period of time. 4)

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4) Heimbach, J.A., J.L. McPartland, A.B. Super, Air Pollution Potential Determination for Big Sky, Montana, Gallatin Canyon, Monograph #14 Montana State University, 1973

G. WATER QUALITY AND QUANTITY

While the West Fork receives more precipitation than the lower Gallatin River, there is not an overabundance of surface water in the Gallatin drainage. Much of the time adjudicated water rights on the Gallatin River exceed the entire flow of the river.

The availability and quality of water has played an important part in the development of Big Sky and surrounding area. Groundwater appears to be abundant on the Big Sky property, with saturated soil thickness of 58 feet and well yields as high as 200 gallons per minute. Water tables have fluctuated only slightly.

Since the Gallatin River is a Blue Ribbon trout stream and has tremendous scenic value, pollution of the stream would have a very adverse impact. Big Sky constructed a closed water treatment system for both villages and formed a rural improvement district to operate the central sewage system. Included in the boundary of the RID are adjacent lands of other owners, including I.C.B.I. Development's West Fork Meadows located southwest of the Meadow Village. The Gallatin Canyon Case Study has shown no observable adverse changes in the chemical or biological quality of the surface or groundwater.

There was an increase in turbidity and sedimentation resulting from construction of the resort and a channel change for realignment of the Spur, (1972) but this dropped off as the construction declined. The turbidity and sedimentation caused a decrease in the population of aquatic insects, but the aquatic insect population is recovering, although it has not yet reached preconstruction levels.

The Water Quality Bureau of the Montana State Department of Health and Environmental Sciences has classified the West Fork and the Gallatin Rivers as high quality streams. This means that the quality is to be maintained suitable for bathing, swimming, recreation, propagation of salmonid fishes, and associated aquatic, agricultural and industrial supply, and drinking after specified levels of treatment. Sanitary restrictions are automatically placed on all subdivisions until the Water Quality Bureau is satisfied that there will be no degradation of water quality resulting from those subdivisions.

H. VEGETATION

The coniferous forest and associated flora of the upper Gallatin drainage and the east slope of the Madison Mountain Range, without the influence of man, is quite predictable along a forest gradient of increasing moisure, descreasing temperatures and known soil variations. (Pfister 1974)

The climax vegetation along the proposed project alternate alignments has been altered by logging, grazing of livestock, forest fires and other activities of man. Due to these forces, lodgepole pine has invaded and is the principle coniferous species with lesser amounts of Douglas fir, Engelman spruce, subalpine fir, leaving only the high windswept slopes to the hardy Whitebark pine. At the lower elevations, open flatlands support plant communities of sagebrush, grasses and perennial forbs; riparian (streambank) vegetation is prevalent along the watercourses, As the elevation increases, the coniferous forest is interspersed with parks and wet meadows. These more moist sites support grasses, shrubs and forbs indigenous to subalpine meadows and canopied forests. (Pfister 1974) (See Appendix B and C for plant species)

I. FISH AND WILDLIFE

The West Fork area serves as home range for a variety of wildlife species. Elk are the major influent big game animals in the drainage, with the Gallatin Canyon supporting one of the largest elk herds in the state. Other big game in the area include mule deer, moose, bighorn sheep, mountain goats, and black bear. Grizzly bears may also reside in or around the drainage. (5) The predominent game bird in the area is the blue grouse; lesser numbers of ruffed grouse are also present. In addition to game species, the project area is populated by various song birds, raptors, predators, furbearers, and numerous small mammals.

No known big game winter range or migration route lies within the immediate project area. However, the areas west and southwest of the West Fork drainage, and the area surrounding Lone Mountain and extending westerly into the Jack Creek drainage, are known elk summer ranges.

The only threatened or endangered species in the region is the grizzly bear, which has been classified as threatened. The exact status of the grizzly bear in the area of the proposed highway improvement is unknown. It is probable that grizzlies do not frequent the area because of their incompatibility with extensive development. A study by the Interagency Grizzly Bear Study Team, which commenced in 1973, includes the West Fork drainage. The nearest confirmed siting of grizzly bears to date has been approximately five miles from the project area. Hunting of grizzly bears has been closed in the area bordering Yellowstone Park, including the Gallatin Canyon, since 1974.

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5) Picton, H.D. 1972. Elk, Economics and Recreational Development; Gallatin Canyon, Montana. N.W. Section, The Wildlife Society, Corvalis, Oregon, March 1972

The most important fishery in the general area is the Gallatin River, which is rated as a Blue Ribbon trout stream, from the vicinity of Sage Creek north past the mouth of Spanish Creek. (6) Fisheries in the project now include the West Fork of the Gallatin, the North and Middle Forks of the West Fork, Beehive Creek, and Ulreys Lakes, which are in the Jack Creek drainage of the Madison River basin. The West Fork classification of the fishery is unknown.

The most important game fish in the region is the rainbow trout, with brown, cutthroat, brook, rainbow-cuttthroat hybrid trout, and mountain whitefish also found. Rainbow, brown, and brook trout are not native to the area; plantings have been discontinued.

J. LAND USE

The past trends and present land use characteristics of this area have depended on natural resources, the type of ownership (public or private), the percentage of ownership, location, and the absence of zoning regulations or guides for land development. An additional factor is the nationwide increase in demand for outdoor recreation.

Southwestern Montana and northwestern Wyoming were recognized early in the development of these states as possessing scenic unique areas. Large postions have been set aside as national parks and primitive areas to preserve the natural setting.

The combination of land forms, lakes, streams, climate, location and forest environment make the Gallatin Canyon very attrative in terms of recreational potential. The presence of Yellowstone National Park, the

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6) Brown, C.J.D. et al. A Classification of Montana Stream Fishing Streams, By, Stream Classification Committee. Montana Department of Fish and Game, Helena, Montana.

Spanish Peaks Primitive Area, and the development of Big Sky adds to that potential. Yellowstone Park attracts over two million visitors annually, with U.S. 191 as a major route to the Park. The Gallatin Canyon is an area with a limited population, and with the exception of U.S. 191, limited access. Topographic contrasts have also limited the type and extent of development.

At about the same time public land reserves were being established the federal government was also stimulating the growth of the western states by encouraging the building of railroads. As incentive to build the railroads through the undeveloped states, land was granted to the railroads. In the Gallatin and Beaverhead National Forests, these grants were in a checkerboard pattern, with the Forest Service owning the even-numbered sections and Burlington Northern, Inc., through a merger with Northern Pacific, owning the odd numbered sections.

Starting with the extension of Yellowstone Park to include private land in 1926, land exchanges were initiated to eliminate the private holdings in the park, and to consolidate land for management reasons for both the railroad and the Forest Service. (7) A total of three land exchanges have been proposed to date.

The Forest Service owns about three-fourths of the Gallatin Canyon, with the Burlington Northern, Inc. owning much of the remaining land. A number of private lands occupying the lowlands near the streams and the U.S. 191 highway corridor resulted from homesteads. The railroad, in the past, sold some of its land in the West Fork and Taylor Fork drainages to other private owners. Big Sky of Montana, Inc. acquired a major portion of its holdings from the private owners in the West Fork drainage.

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7) Final Environmental Statement, Gallatin Exchanges, Numbers 2 and 3, U.S. Forest Service, July 1971. Pg. 1.

There are 64,500 acres in the West Fork and Beaver Creek drainages. Before the Gallatin Exchange No. 1 in 1967, the United States owned 50 percent, or 32,640 acres; Burlington Northern, Inc. owned 30 percent, or 19,740 acres, with other owners accounting for 19 percent, or 12,120 acres. After the three land exchanges, the United States retained 28 percent, or 18,340; the Burlington Northern, Inc., after a sale of 1,930 acres to Big Sky of Montana, Inc. owned 50 percent, or 32,110 acres; Big Sky, with 8,720 acres bought from various private owners and the land purchased from Burlington Northern, Inc., owned 17 percent, or 10,650 acres. The remaining owners retained about five percent, or 3,400 acres. (8)

Land use varies from agriculture and logging to outdoor recreational activities, including hunting, fishing, hiking, and camping. Snowmobiling is developing, with West Yellowstone becoming a nationally known center for this sport.

Agricultural usage is primarily limited to grazing activities, with several ranches combining with tourism to form dude ranches. Both the Forest Service and private landowners issue grazing permits to allow their land to be used as pasture by others.

The Forest Service and Burlington Northern lands are mostly timbered mountains. Forest Service land is managed under a multiple-use concept which includes timber harvesting, grazing, reacreation, wildlife, wilderness use, and watershed management for each district. This land is open to the public though the access may be limited by private owners bordering the Forest Service land or by the Forest Service itself. The Forest Service

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8) Ibid. Pg. 26

does not have the authority to control the use of private land inside the National Forest, but can use measures available to any landowner to control actions that may damage National Forest land. (9) Through the use of the special-use permit, the Forest Service has allowed some commercial and private development on public lands.

Burlington Northern, Inc. manages its land under a multiple-use program for timber, water, mining, wildlife, and grazing, with the public using it for recreation due to the intermixing with public lands. 10)

Between 1947 and 1970, a total of 607 acres in the Gallatin Canyon were subdivided in 489 lots, primarily for permanent and seasonal single family units. Residential and supporting commercial sites were of low-density and concentrated along U.S. 191. Subdivision activity was fairly light, but started to increase as demand for second homes increased.

Following the Forest Service land exchanges and the announcement of the Big Sky development, the accent on land use began to change from a rural setting to a more urban type based on commercial recreation. In the Gallatin Canyon (excluding Big Sky of Montana, Inc.) during 1970-71, 460 acres were subdivided into 307 lots. In the period 1972-74, 1291 acres were divided into 513 lots.

The Big Sky complex is being developed according to a master plan drawn up during the initial planning stages. While the complex is not completed and some minor changes have been made, development is still following that plan.

Big Sky to date has subdivided 1,378 acres into 677 lots for single family residents and eight lots to accommodate 1,364 condominium units.

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9) Ibid. Pg. 26
10) Ibid. Pg. 12

Besides skiing and golf, Big Sky has added tennis, swimming, and camper and trailer facilities to the area, along with the marketing of homesites and condominiums.

Big Sky of Montana, Inc.'s two villages provide a compact residential-recreational community, with service and tourist-oriented commercial facilities. The Meadow Village is primarily for summer activities complete with an eighteen hole golf course, while the Mountain Village is based on winter activities with skiing as the main attraction. The ski hill is located mostly on Big Sky's land except for the very upper portion on Lone Mountain, which is on Forest Service land. A special-use permit was issued to Big Sky by the U.S. Forest Service to allow for the completion of the ski hill.

Electricity is the only power source in the West Fork. Existing power capacity in the Gallatin Canyon was insufficient to meet the new projected demand. In 1970, Montana Power Company constructed a 69 kilovolt (KV) line from Gallatin Gateway through the Gallatin Canyon to Big Sky. The line is fully energized at this time. Montana Power has also submitted applications to the U.S. Forest Service and the Montana Department of Natural Resources (DNR) to construct a 161 KV line from Clyde Park to Dillon, with a spur crossing Forest Service and Burlington Northern land to the West Fork and Big Sky via Ennis and the Jack Creek drainage. This line would provide future power to Big Sky and insert a loop into the regional power grid. Approval has not been granted by the Board of Natural Resources or the U.S. Forest Service. A draft environmental impact statement on the application was distributed by DNR in February 1976.

Park View West, previously known as Karst Ranch, consists of 46 lots totaling 98 acres and has received Montana Department of Health and

Environmental Sciences' approval. Approval on three subdivisions around Hebgen Lake (211 acres) has not been granted. The Beaver Creek South development (95 acres) has been approved by the Gallatin County Commissioners, but approval by the Department of Health is presently pending an appeal before the Montana Supreme Court.

Ski Yellowstone is a proposed 2,900 acre ski resort on the north shore of Hebgen Lake. An application has been made to the U.S. Forest Service for a special use permit. Action on the permit is pending the outcome of an appeal on the U.S. Forest Service's Hebgen Lake Planning Unit Final Environmental Impact Statement.

The West Fork Meadows subdivision, consisting of 42 acres located immediately southwest of the Meadow Village, presently has condominiums under construction. Developers may further subdivide an additional 120 acres. The proposed highway improvement would also serve this site.

Logging and agricultural activities have continued with little change except that it has ceased on Big Sky land. Snowmobiling has also been banned on Big Sky land. No significant increase in the number of commercial enterprises outside of the West Fork has taken place and development in the Gallatin Canyon has progressed at a slower place than was originally anticipated by many canyon residents.

In 1973, Yellowstone National Park set a limit on the number of overnight accommodations within the park. This policy has put additional pressure on existing camping facilities surrounding the park, including those in the Gallatin Canyon.

K. LAND USE PLANNING

The Bozeman-Gallatin City-County Planning Board had the responsibility for developing planning programs for the city of Bozeman and its surrounding jurisdictional area. The Board also acted as a reviewing agency for subdivisions and development plans for Gallatin County until 1974, when the Gallatin County Subdivision Regulations were passed. Review of subdivisions and development plans were then transferred to a planning coordinator in conjunction with the Gallatin County Surveyor's Office. An attempt to organize a countywide planning board in 1971 was defeated by local voters. The final approval or denial power on subdivision plats and development plans rests with the Gallatin County Board of Commissioners.

Several attempts by landowners before the appearance of Big Sky of Montana, Inc. to implement zoning were unsuccessful. In June 1970, the Gallatin Canyon Association was formed by residents and property owners. This organization petitioned the State Planning Division to arrange for a Canyon Comprehensive Plan. A California planning firm, Murray-McCormick Environmental Group, was hired to prepare a land use plan for the Gallatin Canyon under the direction of the Association's Citizen's Advisory Committee and Technical Advisory Panel. The final report, entitled "The Gallatin Canyon Planning Study" was circulated in July 1972, and was finally accepted in principle by the Advisory Committee in December 1972. The committee then notified the state agencies that had jurisdiction in the areas covered by the study of the findings. The committee authorized submission of the study to the Gallatin Canyon Association, but no further public action has been taken to implement the plan.

Residents in the Gallatin Canyon south of Buck Creek to the Yellowstone

National Park boundary petitioned the Gallatin County Commissioners and received approval on May 29, 1975 of a temporary zoning ordinance, freezing subdivision activity for a year period. During this period a master plan and a permanent zoning ordinance is to be developed.

The U.S. Forest Service is engaged in extensive planning and land use studies in the Gallatin National Forest, as an ongoing process of updating its multiple use management plan. The areas that concern the West Fork region are the proposed Spanish Peaks Wilderness Area to the north, the Taylor-Hilgard Planning Unit, which includes the proposed Hilgard New Study Area to the south, and the Porcupine-Buffalo Horn Planning Unit, which is included in the proposed Hyalite-Porcupine-Buffalo Horn Study Area to the east.

The Spanish Peaks Wildnerness Study Area presently covers about 63,300 areas, including the existing Spanish Peaks Primitive Area. The Spanish Peaks Study Area was created under the Wilderness Act of 1964, which requires all areas previously designated as primitive to be studied for wilderness classification. A proposal to expand the study area to 113,100 acres has been made.*

The Taylor-Hilgard area, about 245,000 acres, roughly including the land south of the West Fork of the Gallatin River Basin, west of the Gallatin Canyon and north of Hebgen Lake, and the Hyalite-Porcupine-Buffalo Horn Area, about 163,000 acres, located from 15 miles south of Bozeman south along the Gallatin Range to the Yellowstone Park Boundary, were nominated for wilderness classification along with eight other areas in Montana, in 1974.** The wilderness study areas will undergo a five-year study period, with development

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* SB 355 (Spanish Peaks)
**SB 393 (Taylor-Hilgard Study Area)

being restricted during that time.

The 1975 Montana Legislature passed the Montana Economic Land Development Act which requires all counties to have planning in 1977. This act provides tax incentives for appropriate land uses and could guide land use practices in the Gallatin Canyon after 1977. New amendments to the Montana Subdivision and Platting Act were also passed in 1975, which requires development to be in the public interest. This legislation has been implemented for local subdivision review procedures.

L. POPULATION

The population of Gallatin County has increased 38.5 percent from 1960 to 1973, while over the same period, Montana as a whole increased only eight percent. The West Yellowstone Census Division, which includes the entire southern portion of Gallatin County, has shown the highest population growth, 83.5 percent, in the county from 1960 to 1970. (11) Most of the growth was around the town of West Yellowstone, while the Gallatin Canyon remained sparsely populated with only 154 residents in 1970. By 1974, the permanent population of Gallatin Canyon had grown to 719, with 365 living in the West Fork area. Seasonal residents in the Gallatin Canyon numbered about 1,100 in 1970 and grew to an estimated 1,600 by 1974. (12) Big Sky of Montana, Inc. now estimates the permanent population of the West Fork drainage at about 400.

While the permanent population has grown considerably in the last five years, the overriding population increase is due to the tourist population.

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11) Wallner. Pg. 19
12) Stuart. Pg. 48

The peak day population in the West Fork is reached during the winter ski season, with about 3,000 skiers using the facilities at the Mountain Village.

M. ECONOMICS

Gallatin County has one of the fastest growing economies in Montana. The economy in the past has been based heavily on agriculture and education, with some light industry, tourism and recreation. Bozeman, while the center of the agricultural community, has also been influenced by the growth of Montana State University. The University with a staff of over 700, has grown from an enrollment of 4,750 students in 1963 to over 8,900 students in 1975.

Recreational attractions, in addition to Yellowstone National Park, include Bridger Bowl Ski Area, Virginia City, Lewis and Clark Caverns, Madison Canyon Earthquake Area, and the Gallatin Canyon with the Spanish Peaks Primitive Area, Gallatin River, and Big Sky. Not all of these areas are located in Gallatin County but they all influence to some extent the tourist acitivity in the county.

County business indicators, such as bank debits, wages paid, electrical accounts, telephone stations, building permits, vehicle registrations, and restaurant and hotel-motel capacity, show an increase in activity from 1960 to 1970. There has been a marked increase since 1970. Other major changes occurring in Gallatin County, such as general population growth, increased tourism, land values, and agricultural income indicate that growth would likely have continued without development of the West Fork.

The number of people employed in Gallatin Canyon from 1960 to 1970 had grown by 31.9 percent, but so did the number of unemployed, from 3.7 percent to 5.0 percent. The rise in both categories was probably due in part to the

rapid increase in enrollment at Montana State University. Employment in the agricultural and manufacturing sectors had declined in the last decade, but was more than made up by the increase in employment by government agencies, trade and service sectors. (13)

Prior to the development of the West Fork the economic base of the Gallatin Canyon was small, consisting of ranching, logging, and recreation. Many of the permanent residents were either commuters to Bozeman or retired persons. The remainder were primarily proprietors or employees of Canyon businesses. (14) In 1970, there were 12 business establishments, with a total annual volume of less than $100,000 per business. Maximum employment during the peak season amounted to about 85 people, mostly local help and college students. The guest ranches could accommodate about 225 people. Cabins and motels had a sleeping capacity of about 125 and cafes could seat about 170. (15)

West Fork business consisted of a motel, store and service station at the mouth of the West Fork, a ranch, and a dude ranch where the Big Sky Ranch is now located.

A less than significant amount of new commercial construction has occurred in the Gallatin Canyon since 1970. Additional sleeping capacity has been added by remodeling of facilities and a few additions have been made to dining and dancing space, including a new restaurant.

The Big Sky business community is characterized by facilities and services being provided by property owner associations, private or leased businesses, or directly by Big Sky of Montana, Inc. The following is a summary of

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13) Wallner. Pg. 6 and 10
14) Ibid. Pg. 3
15) Stuart. Pg. 74

businesses and services now in operation:

Meadow Village Area:

Restaurant

Convention Center
Bar-Lounge

General Store

Hotel

Volunteer Fire Department

Service Station

Post Office

Telephone Company
Power Company

Visitor Center

Sewage Treatment System

Water Company

Sports facilities: gold course, tennis courts and swimming pool.

Medical Clinic with 24-hour staff.

Guest Ranch

Restaurant

Cabins

Meeting Room

Stables

Mountain Village:

Mall: Shopping center including five stores, three bar-lounges, cafeteria, steak house, day care center, lockers and ski lift facilities.

Convention Center hotel, including restaurant, meeting rooms, bar-lounge and other services.

Hotel

Big Sky, Inc. Headquarters

Camper Village:

In January 1975, Big Sky had accommodations for over 2,000 persons per night, dining facilities for over 1,600, and a ski lift capacity of 5,200 per

hour. No major additions of businesses or services are anticipated in the next few years. Ultimate condominium development is less than 25 percent complete; private home development is less than 10 percent complete.

The volunteer fire department and water company are owned by Big Sky and the sewage system is owned and managed by Rural Improvement District (RID) No. 305. The condominiums are managed by a management association of the owners. Solid waste disposal facilities are provided by an independent contractor. The Montana Power Company supplies the electricity and Continental Telephone provides the telephone services. The medical clinic is owned and operated by a group of private physicians, with the ambulance service also provided by a private company.

The non-construction employment in the total Big Sky development in the 1974-75 season was about 450 between December 15 and April 10, of which about 300 were employed directly by Big Sky. Employment dropped to about 200 during the summer, of which about 125 were employed by Big Sky. This employment level produced an annual payroll of over $1,500,000.

Since Meadow Village is located in Gallatin County and Mountain Village is located in Madison County, two separate school districts exist in the project area. All that part of Big Sky which is located in Gallatin County is in the Ophir School District No. 72 and in the Bozeman High School District. Since the Mountain Village is within Madison County School District No. 55 but geographically isolated from Ennis, Madison County pays the tuition for children attending Gallatin County Schools.

About half of the Ophir School budget is obtained from levies on property in Gallatin County and the balance comes from the state general fund and certain earmarked funds, interest, and income from school lands.

While the taxable valuation of property in the Ophir district rose 384 percent between 1970-75, the total Ophir school budget increased 6.5 times. (16) However, there is a time lag between the time improvements on the land are made and the time they appear on the tax rolls. The influx of new people in the area required that the school be expanded from one room to four rooms. This expansion and the increased enrollment caused the school budget to increase faster than the revenue provided by the tax base. An emergency fund was provided by the State and the mill levy has been increased.

Prior to the rapid development of the West Fork, the canyon was patrolled by a sheriff's deputy. At present, one full-time sheriff's deputy lives in the West Fork and patrols the canyon area at a cost of about $12,000 per year. This cost is shared by Gallatin County, Madison County, and the U.S. Forest Service. Big Sky of Montana, Inc. also provides a security force for the Big Sky complex.

N. TRANSPORTATION

Gallatin Canyon is served by a variety of means of transportation, which includes railroad, air, bus, and automobile. However, access to the Gallatin Canyon and the West Fork area is limited to the highway system of U.S. 191 and U.S. 191 Spur.

The Burlington Northern, Inc, has a major east-west mainline through the center of Gallatin County connecting Bozeman, Belgrade, Manhattan, and Three Forks. Amtrack passenger service also serves Bozeman, using the Burlington Northern, Inc. line. The major airport is Gallatin Field, located between Bozeman and Belgrade. This airport is served by two

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16) Myrick and Thompson. Pg. 29 to 32.

commercial airlines which providedaily north-south and east-west connections. The Yellowstone Airport, located two miles north of the town of West Yellowstone, is open only from May to October with commercial service by two airlines.

Interstate 90 is the major east-west highway through Montana and parallels the railroad through Gallatin County. Bozeman is served by commercial bus service following the interstate. Yellowstone Park Lines, Inc. operates a regular bus service between Bozeman, Gallatin Airport and West Yellowstone, with stops at Big Sky's lower and upper villages.

U.S. 191 is a paved, two-lane primary all-weather highway running from the Montana-Idaho border through West Yellowstone and the Gallatin Canyon to Bozeman, where it intersects with Interstate 90. It serves as the west entrance to Yellowstone National Park at West Yellowstone.

The major use for U.S. 191 has traditionally been by tourists and recreationists as access to Gallatin Canyon and Yellowstone Park, and also as a truck route from eastern Montana south. Peak traffic occurs during the summer months, with the Bozeman-Gallatin Gateway sections and the sections around West Yellowstone having the highest volumes.

The U.S. 191 Spur started out as a series of U.S. Forest Service logging and access roads in the West Fork drainage. This system of roads provided the necessary access for ranching, timber harvesting, fire protection, and recreation. However, they were designed and maintained for seasonal use only, with little or no surfacing.

In 1971, work started on rebuilding the logging road. The lower three miles were built to Montana Department of Highways' Standards, except for width, but was not paved. This portion of the spur is presently maintained

by the Montana Department of Highways. The upper 6.1 miles of road has been improved by Big Sky of Montana, Inc. Some of these improvements and alignment changes were made according to the initial Department of Highways' design. This portion is not surfaced and is inadequate for present traffic volumes.

III. PROBABLE IMPACTS OF THE PROPOSED ACTION ON THE ENVIRONMENT

A. PRIMARY IMPACTS

SOCIO-ECONOMIC:

The major impact of this project would be to provide a safe and efficient highway for the traveling public. This would be accomplished by utilizing highway design procedures which will minimize the environmental impacts of a road in the geologically fragile West Fork area. The traveling public and the present and future residents of the West Fork would benefit as a result of the proposed improvement.

Improving the existing road would provide an adequate connection between the numerous recreational areas at the two Big Sky Villages and the educational, governmental, religious, shopping, and transportation facilities at Bozeman and West Yellowstone. Access to public and private land in the West Fork would be greatly improved. Both the U.S. Forest Service and Burlington Northern, Inc, have land management plans for the West Fork area which would be aided by the improved road. The improved access to the recreational development would increase the desirability of developing private land adjacent to the Spur. The improved facility will also benefit those who have jobs at Big Sky. All of these road users are now paying state and federal gas taxes for an inadequate facility. The elimination of the dust, mud, chuckholes, siltation of streams and reduction

of vehicle wear and tear are additional positive effects of this project.

No displacement of existing homes or businesses would be required since the original road was developed in conjunction with the other developments of Big Sky, and the proposed improvements would, for the most part, follow the existing road alignment. Minor changes in proposed residential lots near Beehive Creek may be necessary.

The project right-of-way does not include any park, recreational area, wildlife or waterfowl refuge, or historic site that is publicly owned and classified as Section 4(f) land. (See Appendix F) An archaeological survey was conducted by the University of Montana in the West Fork area. The survey yielded seven archaeological sites which were open, seasonal campsites. Some artifacts were found, but no associated cultural evidence was found.

CONSTRUCTION:

Approximately 168 acres would be used for the project right-of-way. Forty-six acres were previously acquired prior to the lower three mile grade/gravel contract. Of the 168 acres, about 60 acres were grassland and 108 acres are timbered. A reduced standard road width is being proposed to minimize the amount of road scars. Construction would require the removal of some vegetation. However, construction on the existing alignment and reduction of the vegetation clearing width would minimize the aesthetic impact.

All areas disturbed by construction would be revegetated to reduce erosion and improve aesthetics. Some erosion will occur during construction and continue until permanent vegetation has been established. Initial seeding would be evaluated in subsequent years; remedial action such as reseeding and fertilizing to increase plant vigor may be necessary. The use of berms, dikes, dams, sediment basins, slope drains, energy dissapators, mulches and

mats, in addition to protective ground cover, would further reduce erosion on areas exposed to concentrated flows of surface water.

The proposed alignment would cross landslide-prone formations, some of which are presently active. The topography and the required road grade make it impossible to avoid all of the unstable areas; however, design features such as surface and subsurface drainage and minimum cut and fill sections would minimize the effects of crossing these areas.

The surface runoff pattern of the area traversed by the project would be changed by concentrating runoff at roadway cross drains. Although alternation of runoff is an essential consequence of any change to the natural topography, changes in runoff resulting from this project would be minimized by following the existing roadway whenever practicable and by ample use of cross drains.

Installation of drainage structures at stream crossings will result in temporary disruption of the stream channel, with an increase in turbidity and siltation. This would be harmful to the fishery in the stream. Channel changes would be confined to minor modifications at the inlets and outlets. A temporary crossing structure or a detour using interior roads of the Meadow Village will be required at the Middle Fork of the West Fork crossing during construction to maintain traffic movement to the Mountain Village.

Highway construction would have a localized impact on the groundwater table and flow. Short term changes in groundwater quality can also be anticipated. However, these effects are only local and none are considered to be of such magnitude to require remedial action.

Deicing chemicals will not be used on the Spur during maintenance, however, a limited amount of salt is applied to gravel/sand stockpiles to retard freezing. All construction activities would be in conformance to applicable water quality standards and the Montana Stream Preservation Law.

During the construction phase of the project, there would be some disruption of traffic. Detours would be used and there would probably be short time delays for traffic.

AIR:

Air quality will not be a major problem on this project if the roadway is surfaced, although there is a dust problem at present as a result of the gravel roadway. The construction process will probably add to this for a short time. Since this project is a low volume facility, defined by the Federal Highway Administration as under 10,000 vehicles per day within ten years after modification, the Federal Highway Administration's nomograph for estimating carbon monoxide (CO) concentrations has been used to estimate the CO contribution for the worst conditions (wind angle with the highway of less than 22½°, wind speed of less than one meter per second at a distance of 50 feet from the centerline of the driving lane for a 1996 design hourly volume of 550). Under these conditions, a predicted CO concentration of 1.0 (parts per million) is not considered significant when compared to the National Primary Ambient Air Quality Standards for CO of 35 ppm.

This project would not conflict with the State's plan for achieving federal ambient air quality standards and the Department of Health and Environmental Sciences has indicated that the project will not have a significant adverse effect on air quality in the area.

FISH AND WILDLIFE:

While major wildlife winter range or migratory routes are not crossed by the U.S. 191 Spur, a loss of habitat will occur as a result of the increased right-of-way. Presently this habitat is marginal because of its close proximity to the existing alignment. There will be an increase in traffic, but with the low design speed (35 mph), a problem with collisions between vehicles and big game is not anticipated. However, if collisions are found to be a problem, signs would be installed to warn motorists of game crossings.

With the increase of people in the area as a result of the improved access, hunting and fishing pressure can be expected to increase in the West Fork and Ulreys Lakes, and recreational enjoyment derived from individual forms of recreation may be reduced. Studies have not been conducted which predict the abilities of these waters to adjust to an increase in pressure. More people would also increase the risk of man-caused fires.

NOISE:

Noise levels would be higher than at present. However, taking into account the low density of seasonal and permanent dwellings and the projected traffic, the increase in the noise levels would not reach the design noise levels as set by the Federal Highway Administration. FHWA's nomograph for predicting highway noise levels was used to determine future noise levels. Critical points considered were the Big Sky of Montana, Inc. Information Center, residences at Station 52+00, and the Medical Clinic. All noise levels that would be generated were below the 70dBA standard for motels, schools, churches, hospitals, and parks, except at Big Sky Information Center, which is below the 75dBA standard for developed lands not classified in the 70dBA or below standard.

B. SECONDARY IMPACTS

The secondary impacts of this project can be correlated with the impacts of the recreational development. The initial impact of the Big Sky complex was to accelerate the change in land use that was taking place in the Gallatin Canyon. A new community was formed with new jobs and recreational facilities, and other public services. The rapid growth of the West Fork area has required an inital public expenditure above that generated by taxes, but the development can be expected to produce sufficient tax revenues to cover public expenditures. (17)

With the growth of the Gallatin Canyon, additional highway traffic is expected on U.S. 191. Figures I through IV illustrate the annual daily traffic figures by year, from 1965 through 1975, for four counting stations on U.S. 191. The stations range from 12.5 miles north of the U.S. 191 Spur junction to 15.6 miles south of the Spur junction. Also included is an estimated pre-Big Sky traffic projection represented by a dashed line. The difference in the two lines represents the approximate impact of the West Fork traffic on U.S. 191.

In Figure I, both local Bozeman oriented and West Fork traffic is included and when compared with Figure II, shows the general increase of traffic closer to Bozeman.

Figure II represents traffic just north of the U.S. 191 Spur junction. While the increase in traffic as a result of the Big Sky development is easily noted, traffic has declined since 1974. This is probably due to the same factors as stated for the decline of traffic on the U.S. 191 Spur: decline of construction traffic, established bus service, longer stays at Big Sky, and reduction of local sightseers.

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17) Thompson and Myrick. Pg. 39.

FIGURE I

STATION 100 U.S. 191 12.5 MILES NORTH OF U.S. 191 SPUR JCT.

STATE HIGHWAY COMMISSION OF MONTANA

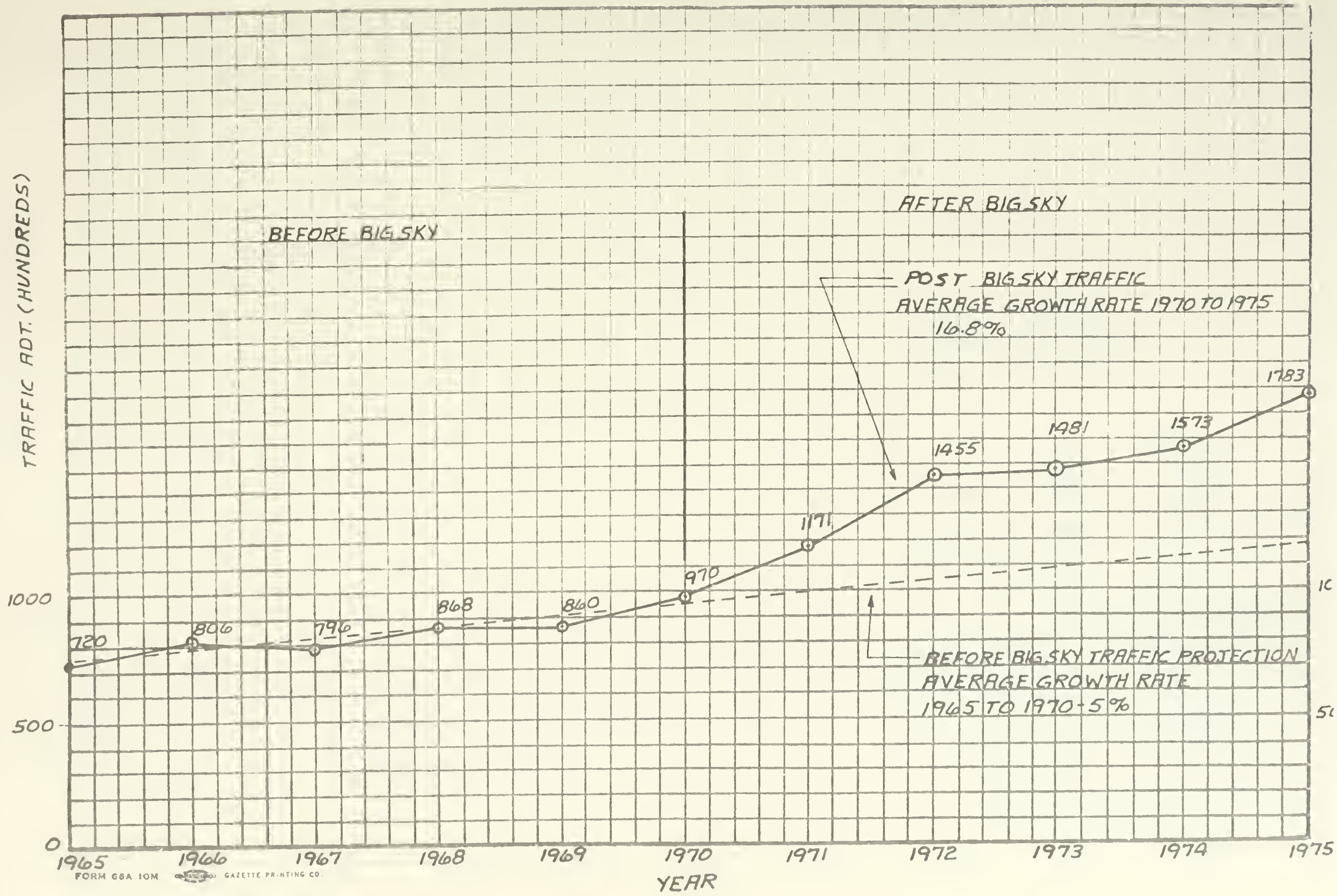

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FIGURE II

U.S. 191 - U.S. 191 SPUR JCT. TO 12.5 MILES NORTH OF JCT.

STATE HIGHWAY COMMISSION OF MONTANA

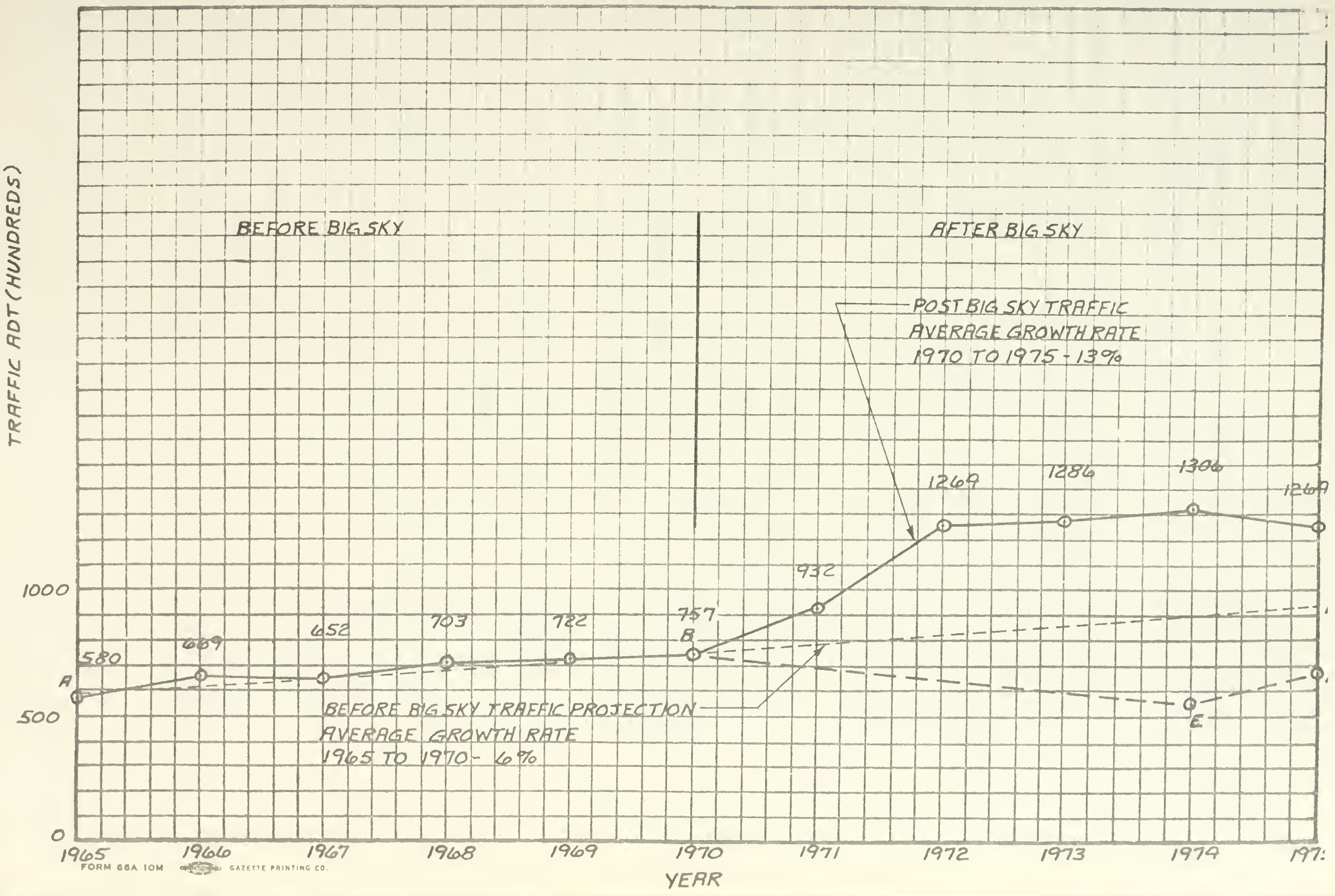


Figure III shows traffic on U.S. 191 one-half mile south of the Spur junction. Again the declining trend is noted as in Figure II, from 1974 to 1975.

Figure IV represents traffic on U.S. 191 15.6 miles south of the Spur junction. The impact of the Big Sky development has had little impact on U.S. 191 this far south of the Spur junction, but the effects of the energy and inflation crisis has resulted in an actual decline in traffic below the pre-Big Sky traffic projected line. Without the development of Big Sky, the energy and economic crisis would have had a decreasing effect on the U.S. 191 traffic.

Distribution of the U.S. 191 Spur traffic onto U.S. 191 is based on turning movement counts taken by the Planning and Research Bureau of the Montana Department of Highways. Turning counts indicated that 69 percent of the Spur traffic either came from the north on U.S. 191 or turned north from the Spur onto U.S. 191, and 31 percent turned to or came from the south portion of U.S. 191.

Based on the 1996 U.S. 191 Spur traffic projection of 3321 ADT, the portion of U.S. 191 anticipated to be impacted the most by the U.S. 191 Spur traffic would be the section just to the north of the Spur junction. Assuming 69 percent of the Spur traffic turned or came from the north, (3321 X .69) 2300 vehicles per day would be added to U.S. 191 by 1996.

Also, by using the percent of U.S. 191 Spur traffic which turned or came from the north, and subtracting this traffic from the existing U.S. 191 counts, the actual pre-Big Sky U.S. 191 traffic projection line might actually be represented as the dashed line BEF rather than line BD as shown in Figure II.

FIGURE III

STATION 2 U.S. 191 0.5 MILES SOUTH OF U.S. 191 SPUR JCT.

STATE HIGHWAY COMMISSION OF MONTANA

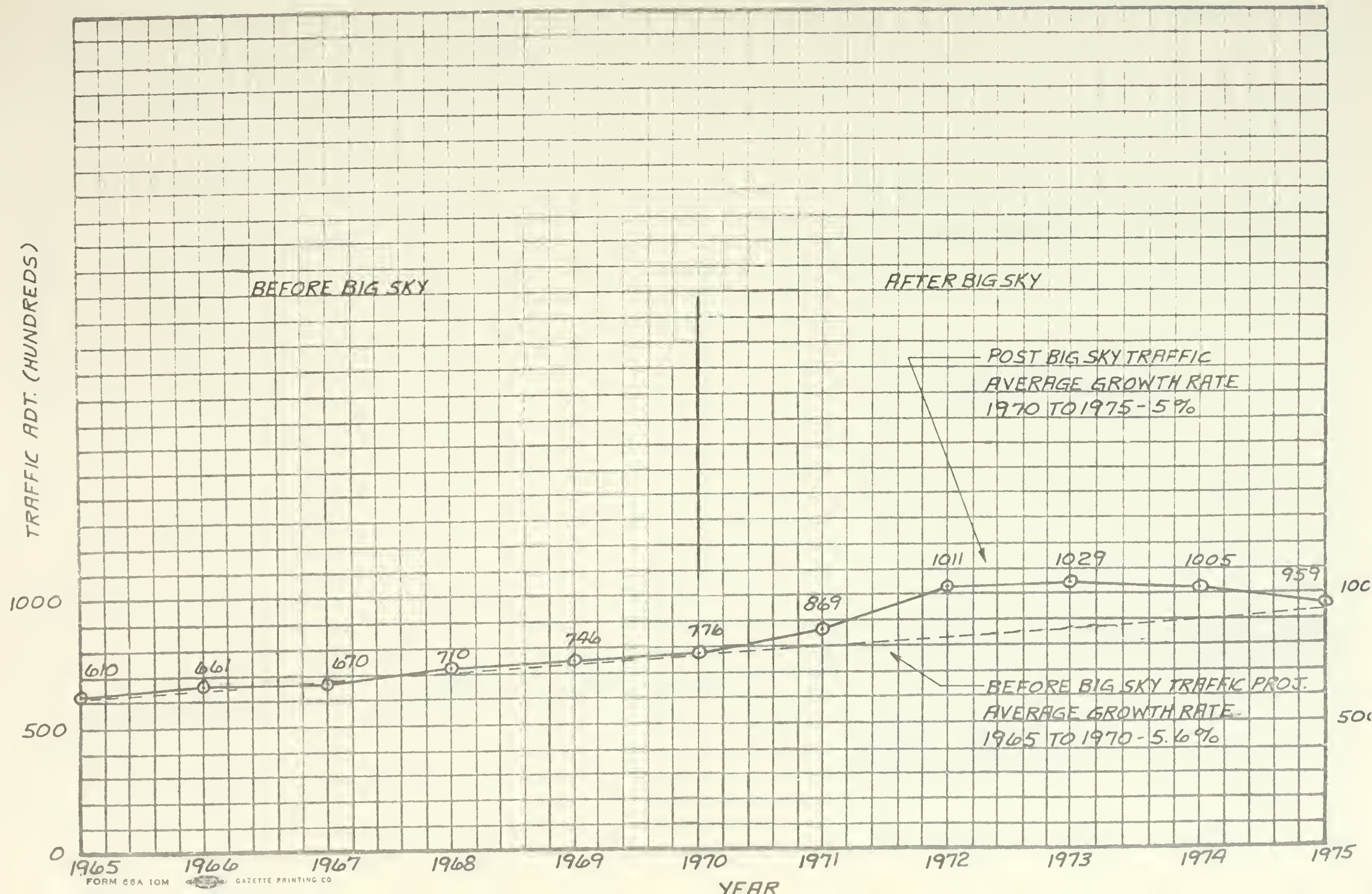


FIGURE IV

STATION 4 U.S. 191 15.6 MILES SOUTH OF U.S. 191 SPUR JCT.
NORTH YELLOWSTONE PARK BOUNDARY
STATE HIGHWAY COMMISSION OF MONTANA

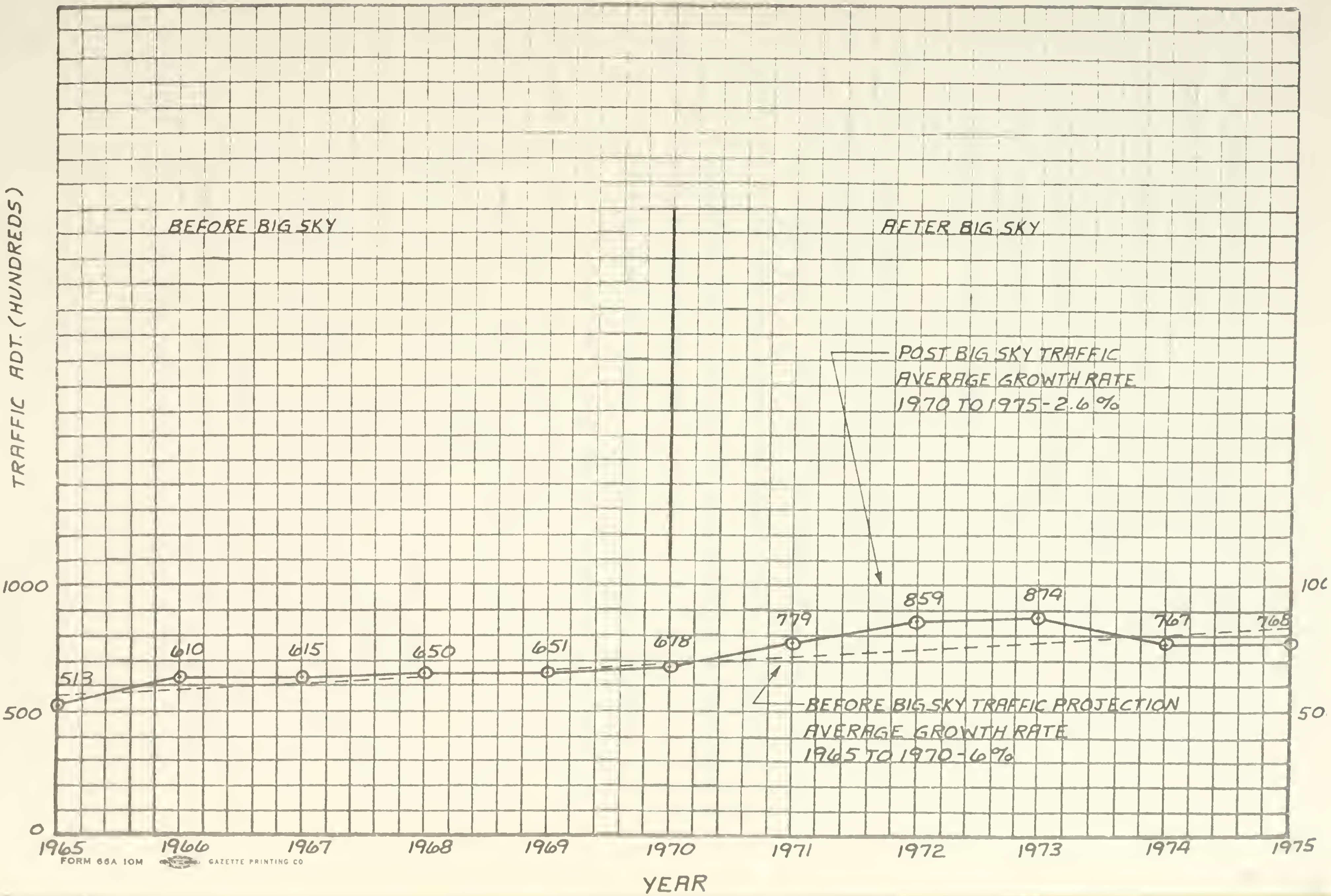


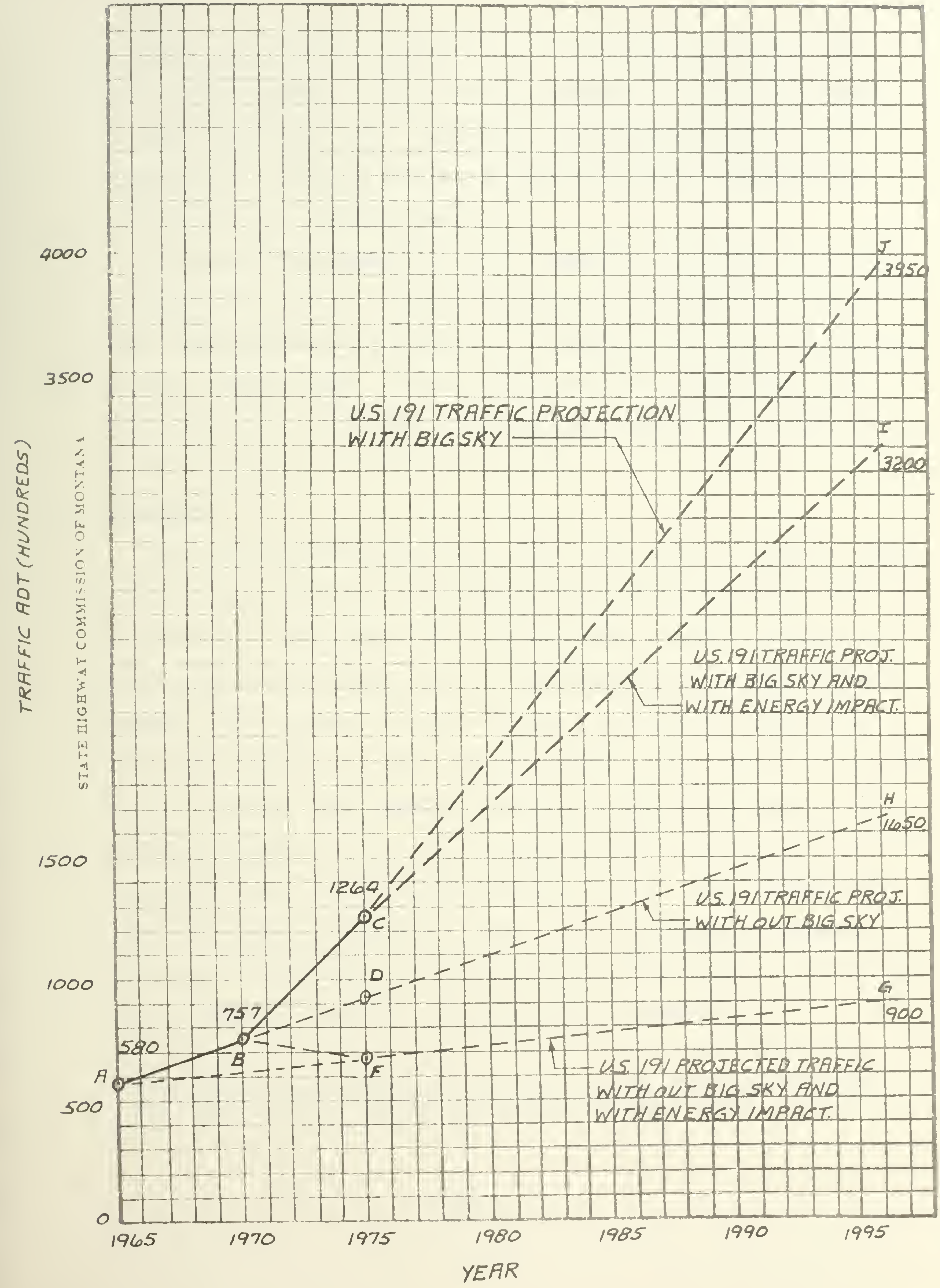
Figure V presents the 1965, 1970 and 1975 ADT counts shown in Figure II. Also illustrated is the projected pre-Big Sky traffic projection line BDH and pre-Big Sky energy impact line BFG. Line BDH was determined by straight line projecting of line AB. This line shows a projected traffic volume of 1650 ADT in 1996 without the West Fork development.

Line FG shows projected traffic on U.S. 191 without West Fork development, but with the energy impact reduction shown. Line FG is a straight line projection of line AF.

The West Fork development adds 2300 ADT to U.S. 191 traffic north of the junction in 1996 and when this traffic is added to points G and H, points I and J respectively are generated. Lines CI and CJ represent the anticipated traffic growth on U.S. 191 with and without the energy impact. Assuming no energy impact, the projected traffic on U.S. 191 as a result of the West Fork development will approach 4000 ADT by 1996.

Capacity is based on level of service, percent of commercial traffic, terrain and roadway width. Based on rolling terrain, lowest level of service, E, a 28-foot width and 14 percent commercial vehicles, the capacity of U.S. 191 is 1088 vehicles per hour or 6600 ADT. The capacity of certain subsections would be lower depending on grade and alignment.

While the findings of the Gallatin Canyon study indicate that the development of the resort complex has not produced substantial environmental problems by itself, the highly publicized resort will attract secondary development, much of which could build up along U.S. 191 and the portion of the Spur not controlled by Big Sky, Inc. without adequate land use controls. Unlimited growth of poorly planned satellite developments could lead to major impacts and overcrowing. Wildlife habitat, and former recreational activities such



STATE HIGHWAY COMMISSION OF MONTANA

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as hunting and fishing that depended on a semi-primitive surrounding would be the first to suffer. In the event that transportation facilities become overtaxed, some form of mass transportation could become necessary, but expansion of U.S. 191 to a four-lane highway would not be recommended for environmental and construction reasons.

The extent of development is going to depend on the success of Big Sky, in addition to a number of currently intangible national and local factors. Some of these factors are the demand for recreational facilities, availability of energy, interest rates, and land use policies, any of which will have a significant effect on the extent of development in the Gallatin Canyon and the West Fork area.

IV. ALTERNATES

When this project was discussed in 1972 in the first environmental impact statement, six alternates were considered.* The preferred alignment chosen at that time was a combination of two alternates which primarily followed the existing road, except around the active slide and through the Beehive Creek drainage. This alignment was chosen because it provided the maximum use of the existing road and a minimum of geologic problem areas. Big Sky of Montana, Inc. has since made improvements to the original logging road based on the preferred alignment. However, the improvements did not include going above the active slide or crossing Beehive Creek with a fill. The alignment proposed at this time is basically the same except that two design alternates are proposed for the active slide and the Beehive Creek crossing. Preliminary cost estimates for construction alternates are in Appendix D.

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* "Final Impact Statement, Project F - 20(1) U.S. 191 Spur. FHWA - Mont. - EIS - 72 - 01 - F." Montana Department of Highways. 1972.

A. ALTERNATE NO. 1

The new proposed alignment follows the existing road from the junction of U.S. 191 and the U.S. 191 Spur to approximately Station 270±. Between Stations 270± and 322± two design alternates are being considered because of an active landslide at approximately Station 285±. This slide is quite extensive, 300 feet wide and 400 feet long, but is only a small portion of a very large old stabilized slide that extends up the hill a considerable distance. Both proposed sub-alternates will pass through the old slide.

1A: Sub-alternate 1A would essentially follow the existing road through the active portion of the slide. The advantage of this route would be that the existing roadway scar would be followed as closely as possible, reducing the amount of new scar and timber removal.

This sub-alternate would present geologic complications and would require special construction features to construct a stable roadway. The water table in the area was found to be within two to five feet of the surface, year around, and several springs exist above and below the roadway. Highly weathered bedrock lying immediately below the surface would require sub-excavation and back filling with drains and ditches installed. The alignment, as shown in Exhibit C, would cross the slide at a skew. This would minimize the amount of cut in the unstable backslope and shorten the length of the fill section.

1B: This is the 1972 proposed alignment which would climb above the active slide area, pass above the Medical Clinic and contour around to a point where it would rejoin the existing roadway at about Station 322±.

Some special design features would be required where the roadway crosses the old slide to insure its stability, but the area does not

present the geologic problems associated with 1A. Approximately 12 acres of new right-of-way through timber would be required by this sub-alternate.

From Station 322±, the proposed alignment follows the existing road up to Station 445±. Between Stations 445± and 460± there are two sub-alternates under consideration for crossing Beehive Creek.

1C: Sub-alternate 1C would leave the existing road at Station 445± and cross the Beehive Creek drainage with a 60-foot high earth fill and a 60-foot cut through the ridge west of Beehive Creek. 1C would shorten the existing road by one-quarter mile and reduce snow removal and maintenance costs. This alignment would increase road user safety, improve traffic flow, and provide a right-angle access to proposed residential lots at Beehive Creek through the use of the existing road. Construction delays would be minimal to road users.

Aesthetically, the new cut and fill would be less desirable, but with revegation the effect could be reduced somewhat. During the construction phase and until sufficient ground cover is established, there would be some additional erosion and siltation on Beehive Creek, the West Fork, and the Gallatin River.

1D: Sub-alternate 1D would follow the existing road as it contours through the Beehive Creek drainage and around the ridge west of Beehive Creek. This sub-alternate, in making use of the existing scar, would not require any significant amount of new land for construction. The advantage of this alignment would be to maintain a more natural contour of the land in addition to a single crossing of Beehive Creek.

Using this sub-alternate would restrict the horizontal alignment making this location less desirable from a safety and traffic capacity

standpoint.

From Station 460± to the end of the project at Station 480±, the alignment follows the existing road.

B. NO-IMPROVEMENT ALTERNATE

The no-improvement alternate would leave the existing road as is, with the State of Montana responsible for only maintaining the lower three miles, which has cost approximately $7000 per year. In general, such costs can be expected to increase yearly. It is doubtful that the road would be improved beyond its present condition without state or federal funds, although some type of low-type bituminous surface could be constructed by the local populace.

The adoption of the no-improvement alternate would mean that public funds would not be spent for construction and there would be no disruption to the area due to the construction of an improved road.

The primary disadvantage of the no-improvement alternate would be the use of an inadequate facility by increasing number of people, which would compound the problems that exist today. A large traffic generator exists in the recreational complex with a permanent population and public services that are normally associated with a community. The resultant dust, mud, and erosion would be substantial and detrimental to the West Fork and to the people of the area.

By adopting the no-improvement alternate, government would fail to live up to its normal and customary obligation of using funds generated to the Highway Trust Fund from gas taxes to provide reasonable transportation facilities to communities and highway users.

V. PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The adverse environmental impacts of construction, such as air, noise, and water pollution, detours and time delays, will occur during and for a short time after construction. The 168 acres of grazing, timber and proposed residential land used in the right-of-way will be precluded from other uses. Noise levels, while within standards, are likely to increase as traffic increases. Subdivision and development along the project not controlled by the Big Sky of Montana, Inc. covanants may increase due to the presence of an improved highway. An improved highway may also stimulate new construction on land already subdivided.

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The short-term uses of the environment for this project will consist of disruption caused by the construction process. When the road is completed and vegetation reestablished, the project will provide a road that is safe and efficient, with stable slopes, proper drainage and a minimum of environmental degradation.

The area is presently undergoing a change in land use. This change would be stimulated by the provision of a modern highway; however, the land use change is expected to continue if the highway is not constructed. Land use changes following implementation of the proposed improvement, regardless of the causal factor, could preclude future less limiting uses.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The land acquired for the right-of-way will no longer be available for timber production, livestock grazing, or wildlife habitat. The commitment of construction materials, money and labor is irreversible in

that it cannot be used for another project at that time. Approximately 800,000 gallons of number two diesel fuel and 55,000 tons of bituminous material would be used. The proposed improvement would reduce the construction monies available for other lower priority construction projects in Financial Districts 9 and 10.

There do not appear to be any major irreversible commitments of resources that would significantly affect the environment in the area of the project. Therefore, the use of the land, money and materials is considered to be justified as it will provide a needed highway facility to serve the traveling public.

The major land use changes involving the developments at the Mountain Village and Meadow Village have already occurred and are not considered major resource commitments of this project.

APPENDIX A

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APPENDIX B

COMMON NAME	BOTANICAL NAME
TREES	
Whitebark pine	*Pinus albicaulis*
Subalpine fir	*Abies lasiocarpa*
Engelmann spruce	*Picea engelmanni*
Lodgepole pine	*Pinus contorta*
Douglas-fir	*Pseudotsuga menziesii*
Cottonwood and Aspen	*Poplus spp.*
SHRUBS	
Willows	*Salix spp.*
Big sage	*Artemesia tridentata*
Snowberry	*Symphoricarpos albus*
Currants	*Ribes spp.*
Huckleberry	*Vaccinium spp.*
Elderberry	*Sambucus spp.*
Common juniper	*Juniperus communis*
Oregon grape	*Berberis repens*
Kinnikinnick	*Arctostapylos uva-ursi*
SEDGES	
Elk sedge	*Carex geyeri*
GRASSES	
Idaho fescue	*Festuca idahoensis*
Bluegrass	*Poa spp.*
Alpine timothy	*Phleum alpinem*

APPENDIX B CONTINUED

COMMON NAME	BOTANICAL NAME
FORBS	
Sticky geranium	*Geranium viscosissimum*
Lupines	*Lupinus spp.*
Waterleaf	*Hydrophilum capitatum*
Dogtooth lilly	*Erythronium grandiflorum*
Yarrow	*Achillea millefolium*
Wild onion	*Allium spp.*
Prairie smoke	*Geum triflorum*
Star flower	*Lithophragma parviflora*
Dock	*Rumex spp.*
Phlox	*Phlox spp.*
Low larkspur	*Delphinium bicolor*
Shooting star	*Dodecathion conjugens*
Mountain douglasia	*Douglasia montana*
Starry Solomon's seal	*Smilacina stellata*
Cinguifoil	*Potentilla spp.*

APPENDIX C

COMMON NAME	BOTANICAL NAME
Elk	*Cervus canadensis*
Mule deer	*Odocoileus hemionus*
Moose	*Alces alces*
Bighorn sheep	*Ovis canadensis*
Mountain goat	*Oreamnos americanus*
Black bear	*Ursus americanus*
Grizzly bear	*Ursus horribilis*
Blue grouse	*Dendragapus obscurus*
Ruffed grouse	*Bonasa umbellus*
Rainbow trout	*Salmo gairdneri*
Cutthroat trout	*Salmo clarki*
Brown trout	*Salmo trutta*
Brook trout	*Salvelinus fontinellis*
Mountain whitefish	*Prosopium williamsoni*

APPENDIX D

Preliminary Estimate of Cost U.S. 191 Spur

	TOTAL COST
Surfacing lower 3.0 miles	$ 502,000

Alternate Costs Upper 6.1 Miles

		LENGTH	TOTAL COST
Slide area	1A	5,500 ft.	$ 618,000
	1B	6,500 ft.	682,000
Beehive Creek	1C	2,100 ft.	454,000
	1D	3,735 ft.	128,000

Construction costs upper 6.1 miles without alternates	$2,258,000
Total with alternates 1A and 1C	3,329,000
Total with alternates 1B and 1C	3,394,000
Total with alternates 1A and 1D	3,002,000
Total with alternates 1B and 1D	3,067,000

APPENDIX E

CONTRIBUTORS

Joe Armstrong holds a B.S. degree from the University of Montana in Geology. Mr. Armstrong is a registered Professional Geologist. Prior to joining the Department in 1960, he spent two years in the private sector.

Daniel Bartsch holds a B.S. degree in business administration from the University of Montana. Mr. Bartsch spent five years in the private business sector before joining the Department of Highways in 1967, and presently serves as Socio-Economic Coordinator for the Department.

Ken Carpenter holds a B.S. degree in civil engineering from Montana State University in addition to environmental engineering training and is a registered Professional Engineer. Mr. Carpenter joined the now U.S. Department of Transportation's Federal Highway Administration in 1953.

Michael J. DaSilva holds a B.A. and Masters degree in biology from Eastern Washington State College. Mr. DaSilva has been with the Department of Highways since January, 1975.

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Robert E. Hall holds a B.A. degree in biology from Wabash College and a Masters degree in environmental studies from the University of Montana. Prior to joining the Department in 1974, Mr. Hall was an instructor with Montana State University, and presently serves as Manager, Environmental and Landscaping Unit.

Richard A. Howell holds a B.S. degree from Michigan State University in urban planning and is a member of the Montana Association of Planners. Prior to joining the Department in 1973, Mr. Howell worked five years as consultant in urban and regional planning.

Lawrence J. Ivanovitch holds a B.S. in agricultural production from Montana State University in addition to extensive agricultural experience. Mr. Ivanovitch joined the Department in 1973 as an agronomist.

David S. Johnson holds a B.S. degree in geologic engineering from the Montana School of Mines. Mr. Johnson joined the Department in 1959, is a registered Professional Engineer and has done graduate work in environmental engineering. Mr. Johnson presently serves as Manager, Engineering Specialties Section.

Stephen C. Kologi holds a B.S. degree in civil engineering from Montana State University and is a registered Professional Engineer. Mr. Kologi joined the Department in 1958 and presently serves as Chief, Preconstruction Bureau.

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N. A. Rotering received an LLB degree, now Juris Doctorate, from Georgetown University. Mr. Rotering is a member of the Montana Bar, the District of Columbia Bar, U.S. Court of Appeals, the U.S. Supreme Court, and has practiced law in Montana since 1937. He has served as Administrator, Legal Division of the Department since 1969.

Kenneth F. Skoog holds a B.S. degree in civil engineering from Montana State University. Mr. Skoog is a registered Professional Engineer and was employed by the Department of Highways in 1964. He presently serves as Supervisor, Location and Road Design Section.

Bill Strizich holds a B.A. degree in mathematics from Carroll College and a B.S. degree in civil engineering from Montana State University. Mr. Strizich is a registered Professional Engineer and has been with the Department since 1971. He presently serves as a hydraulic designer.

Wayne H. Walters received a B.S. degree in civil engineering from the University of Idaho. Mr. Walters joined the Department in 1964, is a registered Professional Engineer with training in air pollution associated with transportation facilities.

Ronald Williams holds a B.S. degree in civil engineering from Montana State University and is a registered Professional Engineer. Mr. Williams has done graduate work in engineering since joining the Department in 1966.

APPENDIX F

STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME

Helena, Montana 59601
April 13, 1976

RE: U.S. 191
Big Sky Spur

Mr. H. J. Anderson
Montana Director of Highways
Helena, Montana 59601

Attention: Stephen C. Kologi

Gentlemen:

Thank you for your inquiry concerning historic sites in the vicinity of the proposed Big Sky Spur highway project. Our present statewide inventory lists no historic or cultural sites in the vicinity of the project. If the project consists of upgrading the present highway using the existing alignment then there should be no impact on any known or unknown cultural sites.

Thank you for contacting me.

Sincerely yours,

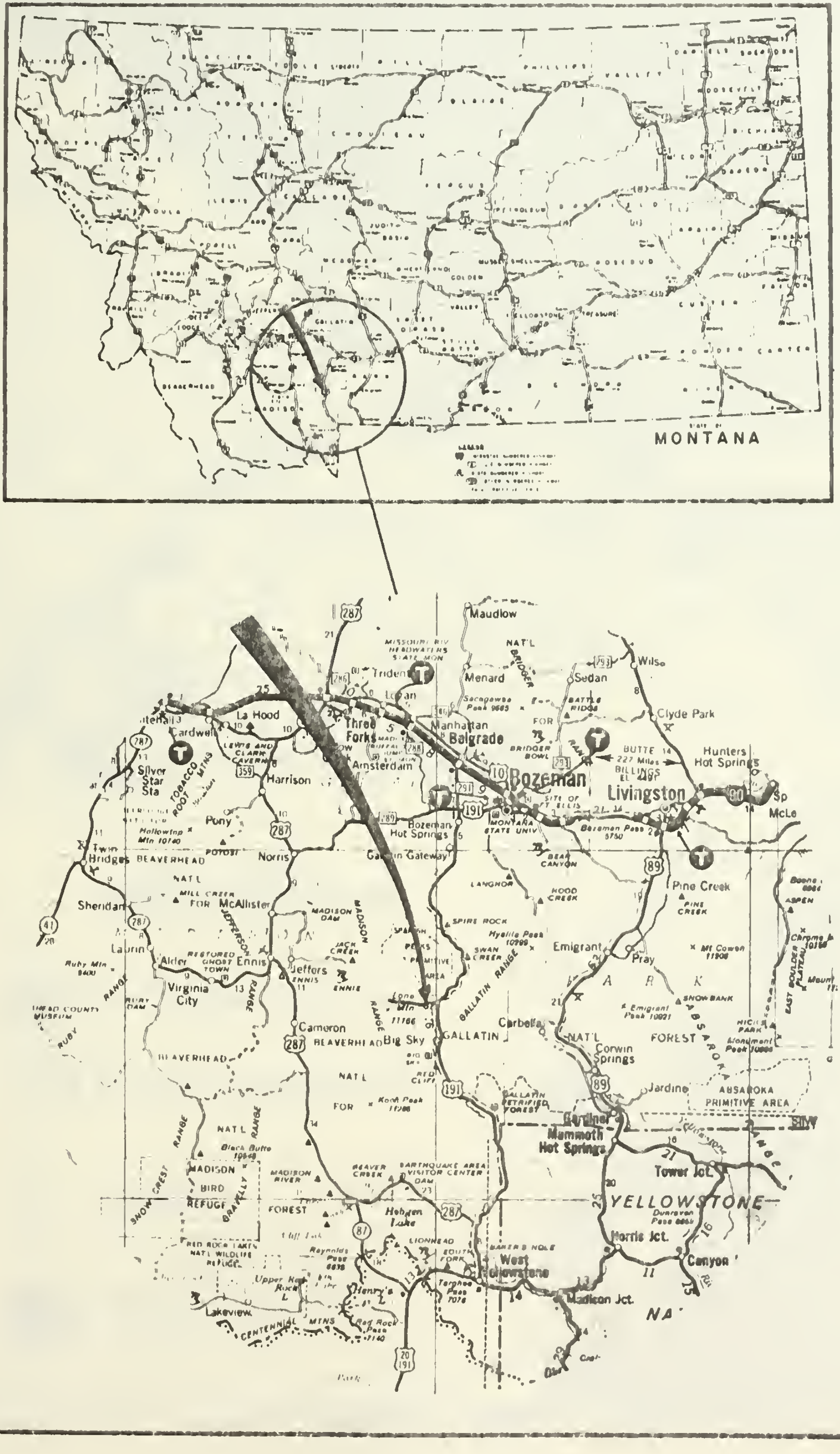
Ron Holliday

Ron Holliday
State Historic Preservation
Officer
Recreation and Parks Division

RH:DC:hm

EXHIBIT A

LOCATION MAPS



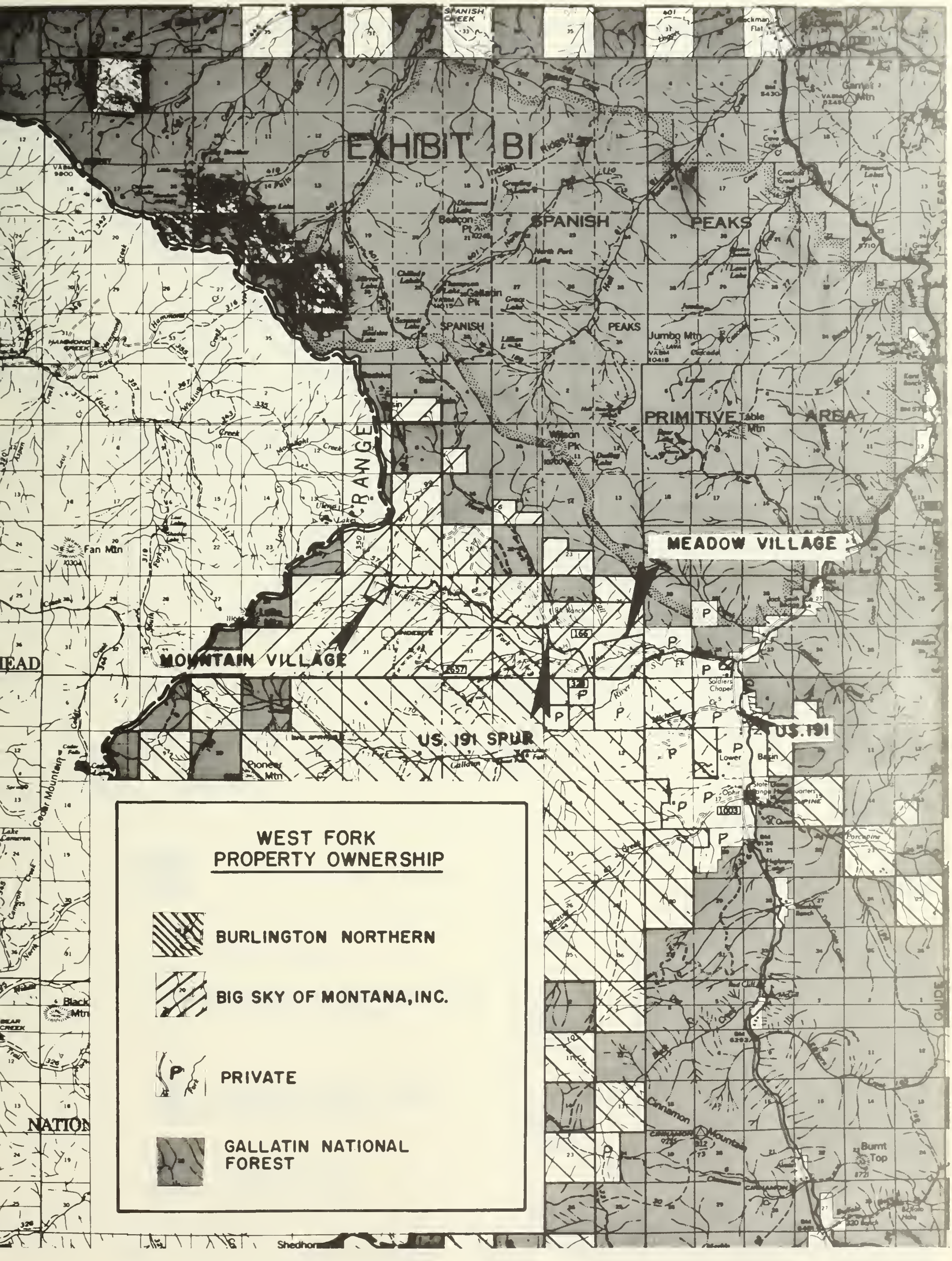


EXHIBIT B1
SPANISH PEAKS
SPANISH PEAKS
PRIMITIVE AREA
RANGE
MEADOW VILLAGE
MOUNTAIN VILLAGE
US. 191 SPUR
US. 191
Beacon Pt
Gallatin Pk
Jumbo Mtn
Wilson Pk
Table Mtn
Garnet Mtn
Fan Mtn
Pioneer Mtn
Black Mtn
Cinnamon Mountain
Burnt Top
Soldiers Chapel
Lower Basin
Ophir
State Game Range Headquarters
Shedhorn
HEAD
NATION
WEST FORK PROPERTY OWNERSHIP
BURLINGTON NORTHERN
BIG SKY OF MONTANA, INC.
PRIVATE
GALLATIN NATIONAL FOREST

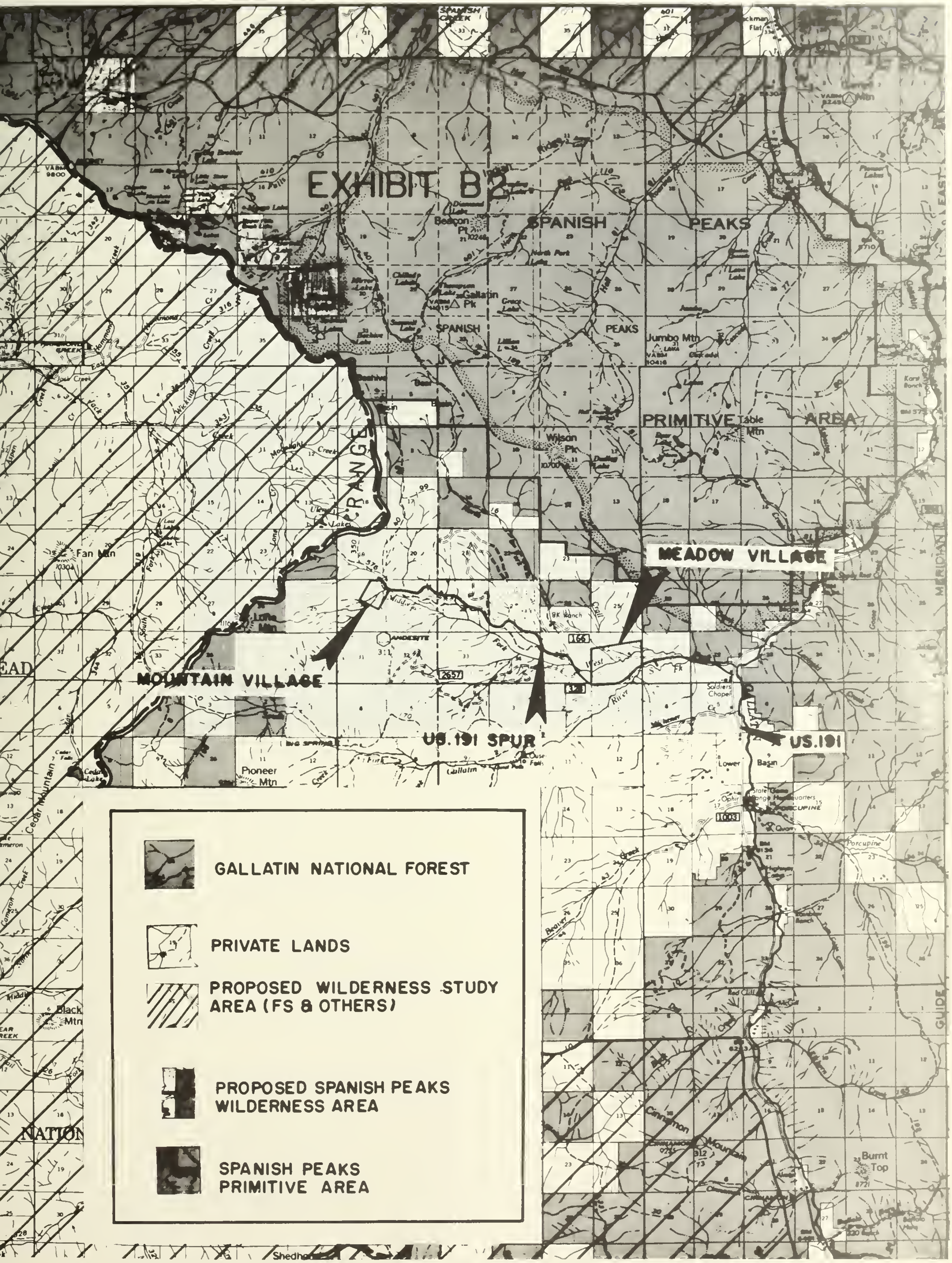


EXHIBIT B2
SPANISH PEAKS
SPANISH PEAKS
PRIMITIVE AREA
MEADOW VILLAGE
MOUNTAIN VILLAGE
US.191 SPUR
US.191
RANGE
Beacon Pt 10246
Gallatin Pk
Jumbo Mtn
Wilson Pk
Table Mtn
Fan Mtn 10304
Lone Mtn
Pioneer Mtn
Black Mtn
Burnt Top
Cinnamon Mountain
Soldiers Chapel
Porcupine
Andesite
Lower Basin
Cedar Mountain
MERIDIAN
GUIDE
EAST
GALLATIN NATIONAL FOREST
PRIVATE LANDS
PROPOSED WILDERNESS STUDY AREA (FS & OTHERS)
PROPOSED SPANISH PEAKS WILDERNESS AREA
SPANISH PEAKS PRIMITIVE AREA

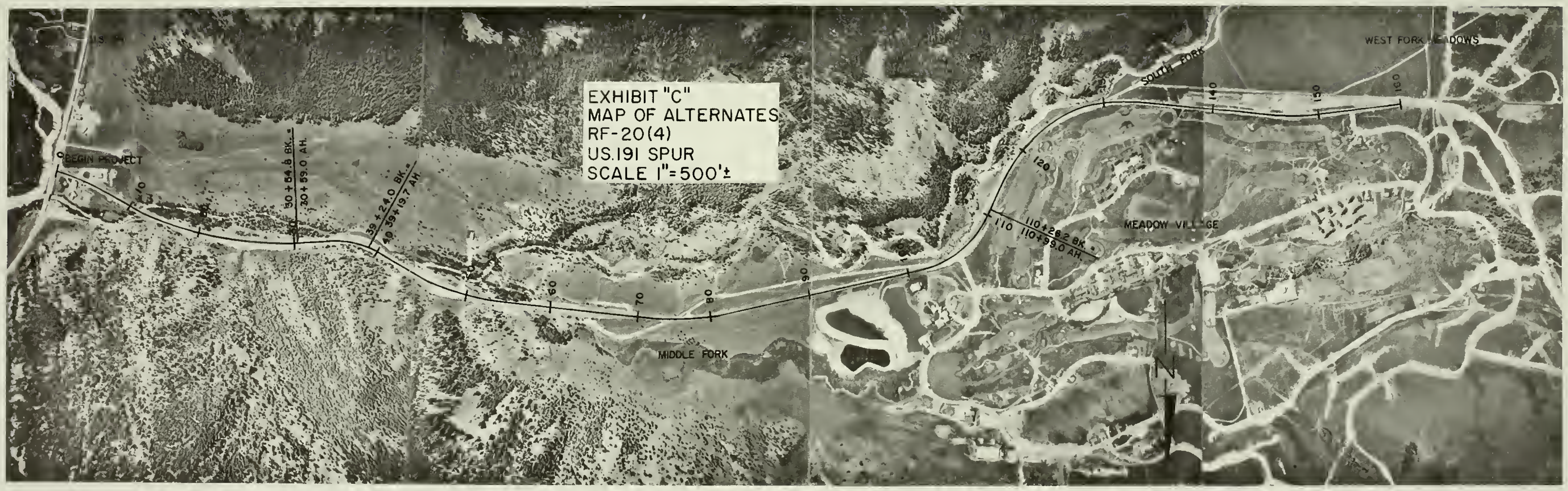
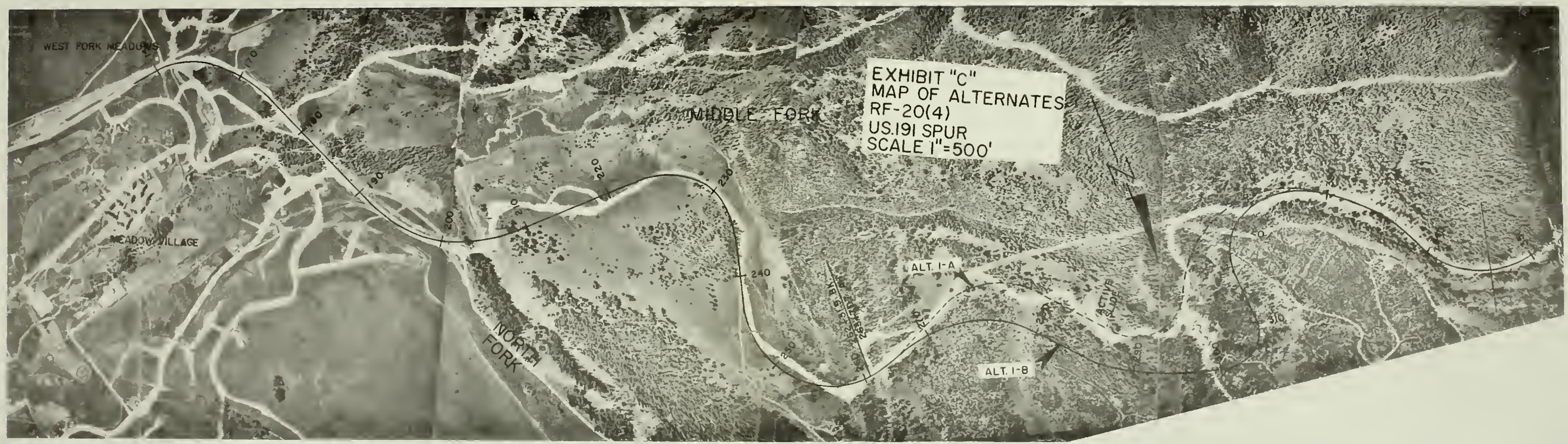


EXHIBIT "C"
MAP OF ALTERNATES
RF-20(4)
US.191 SPUR
SCALE 1"=500'±



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MAP OF ALTERNATES
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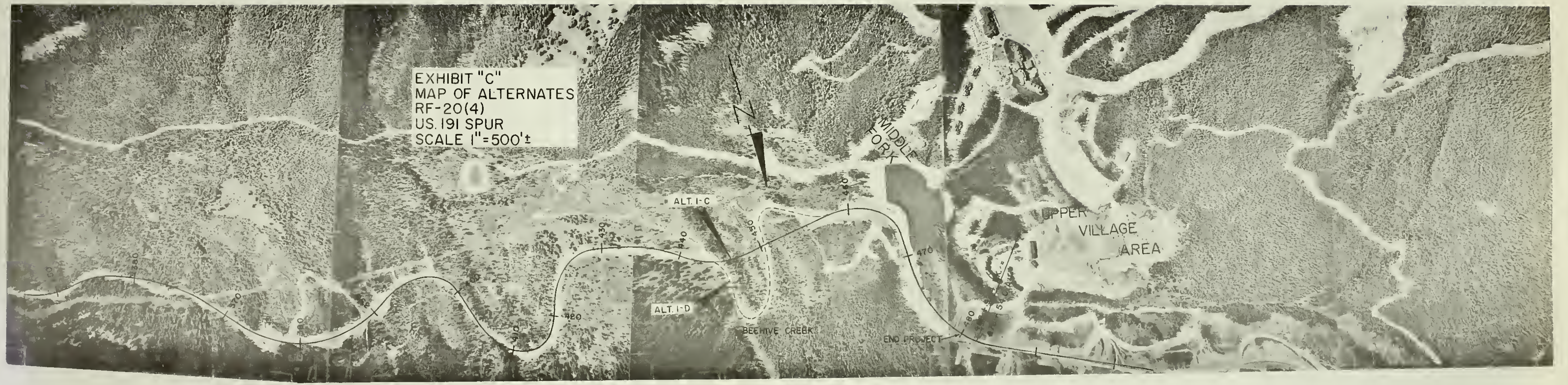

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MAP OF ALTERNATES
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